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Vol. XLIV.] [Part I.

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MARCH, 1881.

The QUESTION *of the* REDUCTION *of the* PRESENT POSTAL TELEGRAPH TARIFF. *By* R. PRICE WILLIAMS, MEM. INST. C.E.

[Read before the Statistical Society, 21st December, 1880.]

THE practical working of the electric telegraph for commercial purposes may be said to date from 1838, when Messrs. Cook and Wheatstone, after having in the previous year patented their magnetic needle telegraph, put up the first telegraph line on the Great Western Railway between Paddington and West Drayton; this was followed by the construction of a telegraph on the Blackwall line in 1840, and by another in Glasgow in the following year. It is not a little remarkable that for some considerable time subsequent to the invention and construction of the electric telegraph, its use was almost exclusively confined to railway purposes and train signalling, the idea of its commercial value being so little appreciated by the public at that time, that the Electric Telegraph Company, on its establishment, after purchasing Messrs. Cook and Wheatstone's inventions in 1846, was looked upon as a complete commercial failure, the shares for a long time being considered as almost valueless, the chief source of the telegraph company's revenue then being derived from contracts they managed to obtain from the railway companies for the construction and maintenance of railway telegraphs. Fortunately, however, for themselves, the Electric Telegraph Company, foreseeing the future commercial value of their undertaking, at the same time that they succeeded in obtaining from the railway companies highly advantageous contracts for the construction and maintenance of the railway telegraphs, secured in many cases by way of set off for the use of their patents, and for other services, exclusive way leave rights for their own telegraphs over the respective railway companies' lines.

From 1846 to 1851 very great improvements were made in the working of the telegraphs, and in November of the latter year, a cable was successfully laid between Dover and Calais, and for the first time the prices of the funds in Paris were known the same day within business hours on the London stock exchange.

The commercial value of the telegraph undertakings now began to become more generally recognised, and from the period of the laying of the first submarine cable in 1851, may be dated the formation of the other great telegraph company, the Magnetic Telegraph Company, which, in close relationship with the Submarine Telegraph Company, enjoyed the exclusive right to carry messages for that company, with exclusive concessions of telegraphic communications from the French and Belgian Governments. This company, which in 1856 became amalgamated with the British Telegraph Company, under the title of the British and Irish Magnetic Telegraph Company, was obliged, owing to the fact of the Electric Company having already acquired exclusive way leave rights on the railways, to have recourse to the highways and canals, in order to establish its communications with the principal towns in this country; in Ireland, however, the case was different, the Magnetic Company having, at a very early period of its existence, obtained there almost exclusive possession of the railways, the Electric Company being obliged in that case to betake itself to the highways and canals. So profitable were telegraph undertakings now becoming, that other companies, such as the United Kingdom and London District Telegraph Companies, were formed, the former company having been established in 1861, with the declared object of establishing a cheap and uniform 1*s.* charge throughout the country, irrespective of distance; another feature in this undertaking was its issuing perpetual 7½ per cent. bonds, upon which interest was to be paid by means of the issue of frank telegraph message stamps, these frank stamps being used very much as postal telegraph and postage stamps are at present. The London District Company, which began its career in 1860, was also formed with the object of establishing cheap telegraph communication within the area of the metropolis and its suburbs, the company's tariff in 1860 being as follows:—4*d.* for a message of ten words, and 6*d.* for a message of twenty words, and for a message of ten words including an answer of similar length, 6*d.*, these charges being in all cases inclusive of delivery. The following summary affords some idea of the progress of this company's traffic, since its formation in 1860 to 1866:—

Year.	Number of Messages.	Percentage of Increase.	Number of Stations Opened.	Miles of Line.
1860	74,582	—	52	335
'61	144,022	93·10	77	378
'62	243,849	69·32	84	401
'63	247,606	1·54	81	430
'64	308,032	24·40	80	454
'65	316,272	2·68	83	470
'66	214,496	−32·18	80	495

Although it cannot be said that either the United Kingdom or London Provincial Telegraph Companies, at the time of their acquirement by the post office, had become commercially as successful as the other two great telegraph companies, the reduction to the uniform 1*s.* rate, effected in the case of the United Kingdom Company, and to the low local 6*d.* tariff of the London Provincial Company, at once resulted in the other companies reducing their tariffs, and the impetus thereby given to the development of telegraph traffic generally throughout the kingdom was very remarkable, as will be seen from a reference to the Tabular Statement No. I in the Appendix and the diagrams which accompany this paper.

The continuous reductions in the tariff of the Electric and International Telegraph Company during the seventeen years preceding its acquirement by the post office, is shown to have been in every case followed by an immediate and rapid increase in the number of messages.

In 1840, and for some years after its formation, the Electric Company's charges for a message of twenty words were at the rate of 1*d.* per mile for a distance of 50 miles, ½*d.* a mile for 100 miles, and ¼*d.* per mile for all distances beyond; the words in the addresses being also charged for.

In 1850 this company's maximum charge for twenty words was reduced to 10*s.*, and in 1851 it was further reduced to 8*s.* 6*d.*, and in November of the same year the charge for 100 miles was reduced to 2*s.* 6*d.*, and for distances over 100 miles to 5*s.* The average gross receipts per message in this year, however, still amounted, as will be seen from the table, to as much as 10*s.* –½*d.* per message.

In 1854 various reductions in this company's tariff were made, the charge for the addresses being for the first time discontinued, practically lengthening each message to thirty words. The average receipts per message for this year show a reduction of nearly 50 per cent. (49·14 per cent.) over the preceding year, while the number of messages were considerably more than doubled (132·98 per cent. increase) :—

In 1855 the company's tariff for messages of twenty words was as follows :—

		s.	*d.*	
For distances of	50 miles............	1	6	for twenty words.
,,	100 ,, ...	2	–	,,
,,	150 ,, ...	3	–	,,
,, beyond	150 ,, ...	4	–	,,

The average receipts per message being reduced to 3*s.* 10¾*d.*, while the increase in the number of messages in the year amounted to over 33 per cent.

In 1861, when the London Provincial Telegraph Company had commenced business with its 6*d.* messages, the Electric and Magnetic Telegraph Companies were both obliged to reduce their charges for all London messages, and this was speedily followed—when the United Kingdom Company commenced its operations—by a uniform 1*s.* rate for all messages forwarded short distances, the average receipts per message being reduced to 3*s.* 6¾*d.*

In 1862 the Electric Company's tariff was further reduced as follows:—

		s.	*d.*	
For distances of	25 miles	1	–	per message of twenty words.
,,	50 ,,	1	6	,,
,,	100 ,,	2	–	,,
,,	200 ,,	2	6	,,
,,	300 ,,	4	–	,,
,,	400 ,,	5	–	,,

The average receipts per message amounted to 2*s.* 10½*d.*, being a reduction of nearly 20 per cent. below the previous year's average; these reductions being accompanied at the same time by an increase of nearly 28 per cent. (27·72 per cent.) in the number of messages sent during the year.

In 1864 another considerable reduction in this telegraph company's tariff occurred as follows:—

		s.	*d.*	
For distances of	50 miles	1	–	per message of twenty words.
,,	100 ,,	2	–	,,
,,	200 ,,	2	6	,,
,,	300 ,,	3	–	,,

The average receipts being further lowered to 2*s.* 4¼*d.* per message, equivalent to a reduction of over 15 per cent. on the preceding year's average, while the year's increase in the number of messages amounted to over 29 per cent.

In 1865 the tariffs of the Electric and the other telegraph companies were again very considerably reduced, but from that date they continued unaltered down to the period of the acquirement of the telegraphs by the post office on the 6th February, 1870. The rates charged were as follows:—

	s.	*d.*	
For messages within London and other towns	–	6	for twenty words.
For distances of 100 miles	1	–	,,
,, 200 ,,	1	6	,,
,, 300 ,,	2	–	,,

The average receipts per message for that year amounted to only 2*s.* 1½*d.*, while the year's increase on messages was as much as 26·09 per cent. The chief feature in the reductions in this year's tariff was the resumption of the 6*d.* messages within the metropolitan area and at all the principal towns. To this important reduction must be ascribed the large increase which followed in the number of messages. Altogether during the ten years 1857-67,[*] the Electric Company's average receipts per message were reduced from 4*s.* 1¼*d.* to 2*s.* -¾*d.*, or just 50 per cent., while the number of messages in the same period increased from 881,271 to 3,351,910, or nearly fourfold.

In Table II of the Appendix, details are given of the Electric Company's working expenses during a period of nineteen years, from which it will be seen that the reductions in the expenses have more than kept pace with the reductions in the tariff, and the same remark applies in the case of the working expenses of the Magnetic Company.

Postal Telegraphs.

The ten years' experience we now have of the working of the postal telegraph system, with its reduced and uniform 1*s.* charge for all messages not exceeding twenty words, appears fully to justify the efforts recently made to obtain some further reduction in the postal telegraph tariff, and notwithstanding what the Postmaster general, in his reply to the deputation which recently waited upon him, said, in regard to the present state of the revenue not admitting of any immediate reduction, the writer is of opinion that the result of the further inquiries he is at present understood to be making in regard to this important matter, will be such as to satisfy him that the time has arrived for some large and well considered scheme for a further reduction in the tariff, and that the loss of revenue anticipated to result therefrom will prove to be even at the outset scarcely appreciable, while the stimulus afforded in increasing and developing new sources of telegraph traffic would, as the past experience of the telegraph companies shows, be such as materially to reduce the present very heavy percentage of the working expenses of the department.

Attention has already been drawn to the very large increase in telegraph traffic which resulted from the repeated and almost continuous reduction in the tariffs of the late telegraph companies, the effect in reducing the working expenses of those companies being still greater, as is well known to those acquainted with the history of these undertakings. By way of illustration it may be mentioned, that while in 1859 the Electric Telegraph Company's average receipts were 3*s.* 11¼*d.*,[†] the working expenses amounted to as much as 2*s.* 7*d.* per message, or over 65 per cent., whereas in 1869, when the average receipts had become reduced to 2*s.* per message, the working expenses only amounted to 1*s.* -¼*d.* per message, or 51 per cent. of the gross receipts, in other words, while the average receipts per message had been reduced 49 per cent., the reduction in the working expenses exceeded 60 per cent.

---

[*] The reason why the results of the working during the years 1868 and 1869 have not been referred to, is the fact that the number of messages for those years have been estimated.

[†] Table II, Appendix.

Frequent and considerable as were the reductions effected at various times in the message tariffs of the different telegraph companies, there never was anything which in magnitude and importance approached that effected on the acquirement of the telegraphs by the post office, when under Mr. Scudamore's auspices the present uniform 1*s.* message rate was adopted. In order fully to realize the extent of this reduction, it is only necessary to bear in mind that, whereas in 1869 the average receipts of the late Electric Telegraph Company, as already shown, amounted to 2*s.* per message, the average receipts per message during the year 1872 was only 1*s.* 1*d.*,* a reduction of nearly 46 per cent., the increase in the number of messages resulting from this large reduction having amounted to at least 46 per cent. during the first year, and to 26, 25, and 24 per cent. respectively in each of the three following years (Table VIII), while the total number of postal telegraph messages has increased, during the last nine years, from 9,850,177 to 26,547,137, or 271 per cent., nearly threefold the average rate of increase during that period, equivalent to over 10½ per cent. per annum. It is difficult to determine accurately the total number of messages sent by the telegraph companies in 1869, the year immediately preceding their acquirement by the post office, but at the outside they could not have exceeded 6¾ millions, in which case the increase in the number of messages during the last ten years has just been fourfold.

The reason why this large increase in the number of messages has not as yet been accompanied by a corresponding reduction in the working expenses per message, as invariably resulted in the case of any considerable reduction in the tariffs of the telegraph companies, is well known to those acquainted with the history of the acquirement of those undertakings by the post office.

It is unnecessary here to say anything on this subject beyond remarking, that the causes which have so far operated against a reduction in the working expenses are of an exceptional character and not likely to recur. The new telegraph lines and wires which Mr. Scudamore was obliged to construct, without much regard to "ways and means," in order to prevent an utter and disastrous breakdown of the telegraph service, at a most critical juncture, have now been completed and paid for.

The large arrears due to the railway companies for maintenance of the postal telegraphs, and which could not be dealt with pending the telegraph arbitrations, have also been paid, and the accounts of the postal telegraph department for the last year, just issued, exhibit for the first time an expenditure of a much more normal character; the working expenses still, however, amount to 76½ per cent.* of the total telegraph revenue, as compared with 48† per cent. in the case of the late Electric Company, and 54 per cent. in that of the Magnetic Company in 1869.‡

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* Table VII, Appendix.

Having regard to these circumstances, the writer is of opinion that in order largely to increase the telegraph traffic, and thereby to bring about a still further reduction in the percentage of the working expenses, a further considerable and well arranged reduction should at once be made in the existing message tariff.

That the reduction to the present uniform 1*s.* tariff was always looked upon by Mr. Scudamore as but the first step to further important reductions is well known, and the writer feels sure that he is but expressing a general feeling of regret, that it has not been reserved to that gentleman to carry out to their conclusion those further comprehensive changes which are still required to render the postal telegraph service the financial success it was intended, and is, he believes, yet destined to be.

The fact of the writer having for some years been engaged on behalf of the principal railway companies in the matter of their claims against the post office has necessarily obliged his devoting much special attention to the various economical questions involved in the business of commercial telegraphy, and has led to his preparing a scheme for a substantial reduction in the present message tariff which he now begs to submit for consideration.

While ensuring the present revenue from any appreciable loss, the writer considers that the inducements offered by his scheme for sending short messages are such as cannot fail to give a great and immediate impetus to telegraph traffic.

The total gross receipts from telegraph messages in the year ending 31st March, 1880, after deducting the receipts from press messages and moneys paid out, were 1,285,627*l.*,§ and the total number of messages forwarded, exclusive of press messages, was 24,467,771, the average receipts per message being 1*s.* 0·61*d.*

Had all these messages been ordinary 1*s.* messages of twenty words, they would have yielded a revenue of 1,223,387*l.*, the balance of 62,240*l.* representing the excess money received for all messages over twenty words. Assuming this latter amount to be divided equally between messages of twenty, thirty, thirty-five and forty

---

* See Table VII. † See Table IV. ‡ See Table V.

§ See Table VI.—	Gross revenue from messages	£1,549,866
	Deduct paid out	264,239
		£1,285,627

words, for which excess payment is now required of 3*d*., 6*d*., 9*d*., and 1*s*. respectively, the number of messages of each kind exceeding twenty words would be inversely proportioned to the excess charges as follows:—

Messages exceeding Twenty Words.					Receipts from Messages of More than Twenty Words.
					£
1,244,780	Equivalent to messages of	twenty-five	words	at 3*d*.	15,560
622,390	,,	thirty	,,	6	15,560
414,927	,,	thirty-five	,,	9	15,560
311,195	,,	forty	,,	1*s*.	15,560
2,593,292					62,240

Hence the total number of messages exceeding twenty words would be 2,593,292, which, deducted from the total 24,467,771 messages forwarded, would leave 21,874,479 1*s*. messages of twenty words and under.

Of these 21,874,479 1*s*. messages all we know is, that they did not exceed twenty words, no means being afforded to the public of classifying them, and as no restriction was put upon their inserting less than the twenty words, the probability is that this number of words was in the majority of cases approached very nearly.

There can be no doubt however that if the existing message tariff had been so arranged as to offer sufficient inducements to brevity, a great number of them might have been considerably condensed, especially in the case of telegrams in reply to mere questions, the words "yes," "no," or "all right" in such cases being frequently all that is required. Many other cases obviously suggest themselves where messages of five words would be quite sufficient, such as "Coming home to dinner to-night," "Meet me "five o'clock train," &c., &c.

If the tariff was lowered for such messages, there can be no doubt they would be very largely multiplied without entailing any loss to the revenue, as will be presently shown.

Reverting again to the 21,874,479 1*s*. messages of twenty words and under, it is reasonable to suppose that, as in the case of messages in excess of twenty words, the numbers of those of five, ten, fifteen, twenty words respectively would, if the cost varied, be inversely proportional to the number of words in each case. That 40 per cent. of them for instance might have been condensed to five words, 30 per cent. to ten words, and 20 per cent. to fifteen words, leaving 10 per cent. for messages of the full amount of twenty words.

In estimating the amount of work done in the case of each message, it is necessary to take into account the number of words in the addresses of the sender and receiver: seven words for each address, or say fifteen words for both combined, including the time of despatch of the message, would appear to be all that is required under ordinary circumstances.

A twenty-word message at present would therefore represent at most about thirty-five words. Similarly a twenty-five word message would require forty words, and so on. In the case of the existing ordinary messages of twenty words and under, it is assumed that the average number of words at present is fifteen, equivalent to thirty-five words, including the address.

The following table, based on this assumption, shows approximately the annual number of messages, receipts, and number of words under the present system, it being borne in mind that the figures in italics represent not the *actual* number of messages of five, ten, fifteen, and twenty words respectively, but the number of messages which in all probability would have consisted of those respective numbers of words had the existing tariff arrangements offered sufficient inducements to abbreviate the messages.

Tabular Statement, showing the Postal Telegraph Receipts and Number of Messages for the Year 1879-80.

Number of Words.		Number of Messages (ex-Press Messages).	Tariff.	Gross Receipts.	Estimated Number of Words Telegraphed.
Ex-Address.	Including Address.				
No.	No.	No.	s. d.	£	No.
5	20	*8,749,791*	1 –	1,093,724	656,234,370*
10	25	*6,562,344*			
15	30	*4,374,896*			
20	35	*2,137,448*			
Average say	30	21,874,479			
25	40	1,244,780	1 3	77,799	49,791,200
30	45	622,390	1 6	46,679	28,007,550
35	50	414,927	1 9	36,306	20,746,350
40	55	311,195	2 –	31,119	17,115,725
—	—	24,467,771	—	1,285,627	771,895,195
Working expenses attributable to ordinary messages—			£		
Total expenses			1,111,547	—	—
Deduct receipts from press messages, &c.			142,618†	968,929	—
Net profit on messages			—	316,698	—

---

* 21,874,479 × 30 (the assumed average number of words including the address).

† It is assumed that the receipts and expenses from press messages and private wires balance each other.

On the assumption already made, that the average number of words requisite for ordinary addresses is fifteen, the proportionate charge for the address itself, in the case of a 1*s.* message of twenty words (*i.e.* thirty-five words, including the address), would be three-sevenths of a shilling, or 5·143*d.*, equivalent to about one-third of a penny (0·343*d.*) per word, and the charge for the first five words of a message, including the address, would be four-sevenths of a shilling, or 6·857*d.*; the charge for ten words would similarly be five-sevenths of a shilling, or 8·571*d.*; the average for fifteen words six-sevenths of a shilling, or 10·285*d.*; the charge for twenty words being of course the full shilling. The reduced tariff suggested by the writer as best calculated to meet the requirements at the present juncture, is based on a consideration of the foregoing analysis of the existing charges, and would be as follows:—6*d.* for a telegram of twenty words, including the addresses of sender and receiver, and 2*d.* for each additional five words. The system of including the addresses in the number of words allowed obtains, as is well known, in the case of continental messages, and its advantages are manifold and obvious. In the first place, it reduces the amount of work by offering a direct pecuniary inducement to shorten the number of words in the address. It further makes the payment (as it ought to be) proportionate to the amount of work done, as measured by the number of words in the telegram. It also offers an additional advantage to those who choose to avail themselves of the system of registering their names at the post office in the town where they reside, of still further condensing the words in the address, and thereby proportionably increasing the number of words in the message.

In the following table an estimate is given of the increased number of each class of such messages, together with the receipts and expenses which may be anticipated from the adoption of the proposed reduced tariff. By comparing the table with the one already referred to, showing the actual postal telegraph receipts and messages for the year 1879-80, it will be seen that the adoption of 6*d.*, 8*d.*, and 10*d.* message rates, together with the considerable reduction in the existing tariff, provided for in the case of messages exceeding twenty words, is shown to result in an increase of 53 per cent. in the total number of messages in the first year.

Proposed Tariff. Postal Telegraph Receipts and Number of Messages, &c., as Estimated under Proposed Reduced Tariff.

Number of Words. Ex-Address.	Number of Words. Including Address.	Annual Number of Messages.	Tariff.		Gross Receipts.	Number of Words Transmitted, including Address.
No.	No.	No.	*s.*	*d.*	£	No.
5	20	17,499,582	–	6	437,491	349,991,640
10	25	9,843,516	–	8	328,117	246,087,900
15	30	5,249,875	–	10	218,744	157,496,250
20	35	2,187,448	1	–	109,372	76,560,680
		34,780,421	—		1,093,724	830,136,470
25	40	1,244,780	1	2	72,612	49,791,200
30	45	622,390	1	4	41,493	28,007,550
35	50	414,927	1	6	31,120	20,746,350
40	55	311,195	1	8	25,933	17,115,725
		37,373,713	—		1,264,882	945,797,295
		(Increase over year 1879-80, 53 per cent.)				(Increase over present number 22½ per cent.)
Working expenses 1879-80 (see preceding table)			£ 968,929			—
Increased 11 per cent. (22 per cent. of 50 per cent.*)			106,582		1,075,511	—
Estimated normal Annual Increase—					189,371	—
Gross receipts 1879-80, viz., 10 per cent. on 1,285,627*l.*			—		128,563	—
Net profit on messages			—		317,934	—

* The expenses of clerks' salaries, assumed to be 50 per cent. of entire working expenses, as previously explained.

In the tables referred to, showing the actual postal telegraph receipts and number of messages, the figures in italics, as already stated, give in each case the probable number of postal telegraph messages under twenty words which are now sent. Those of only five words, for which the present charge, including the address, is 1*s.*, are estimated under the proposed 6*d.* tariff (including an address of fifteen words), to increase 100 per cent. Similarly the present ten-word messages are estimated to increase 50 per cent. and the fifteen-word messages 25 per cent.

No increase, however, is assumed in the present number of twenty-word messages, nor has any credit been taken for any increase in the messages exceeding twenty words, although the proposed reduction in the tariff for the present twenty-five word messages amounts to over 6½ per cent.; the reduction in the case of the thirty, thirty-five, and forty-word messages representing in each case as much as 11·11 per cent., 14·30 per cent., and 16·67 per cent. respectively.

With regard to any increase in the working expenses due to the increased number of messages, it should be observed that only a portion of the expenses, viz., the item of salaries and clerks, would be materially affected by it.

It will be seen from the table that although, as already stated, the aggregate estimated increase in the total number of messages is about 53 per cent., the corresponding increase in the number of *words* (which to a great extent is the measure of the work done) only amounts to 22 per cent.

The post office returns give no details of the working expenses, but under the old telegraph companies' system the salaries of clerks, &c., amounted to just half the entire expenses.* In the following estimate therefore a similar increase of 22 per cent. (corresponding to the increase in the number of words in the messages) has been estimated for in the expenses under this head, equivalent to an increase of about 11 per cent. on the entire postal telegraph working expenses.

It will not fail to be noticed that the combined effect of the increase in the number of messages and the proposed reduction in the tariff, is such as to leave the gross postal telegraph revenue very nearly the same as at present, and further, that after deducting the working expenses—increased, as already explained—the net profits are still shown to amount to 189,371*l.* per annum, and if in addition to this be added the 10 per cent. normal annual growth of postal telegraph traffic which has obtained during the last ten years, viz., 128,563*l.*, the total net revenue under the proposed new tariff would even in the first year amount to 317,954*l.*, and so practically leave the amount of net revenue just as at present, viz., 316,968*l.*

In conclusion, the writer would observe that the total amount of capital expended by the post office in the acquirement of the telegraph amounts to 10,120,075*l.*, and the question of providing a sinking fund to recoup this large amount is one, in his opinion, well deserving of attention in any scheme for the reduction of the existing postal telegraph tariff; and as bearing upon this question, it may be mentioned that the annual sum necessary to recoup this capital in a period of forty years would only amount, at $3\frac{1}{2}$ per cent., to what would be equivalent to a charge of just 1*d.* (1·0821*d.*) a message on the 26,547,137 messages of all kinds which were forwarded by the post office during the last year.

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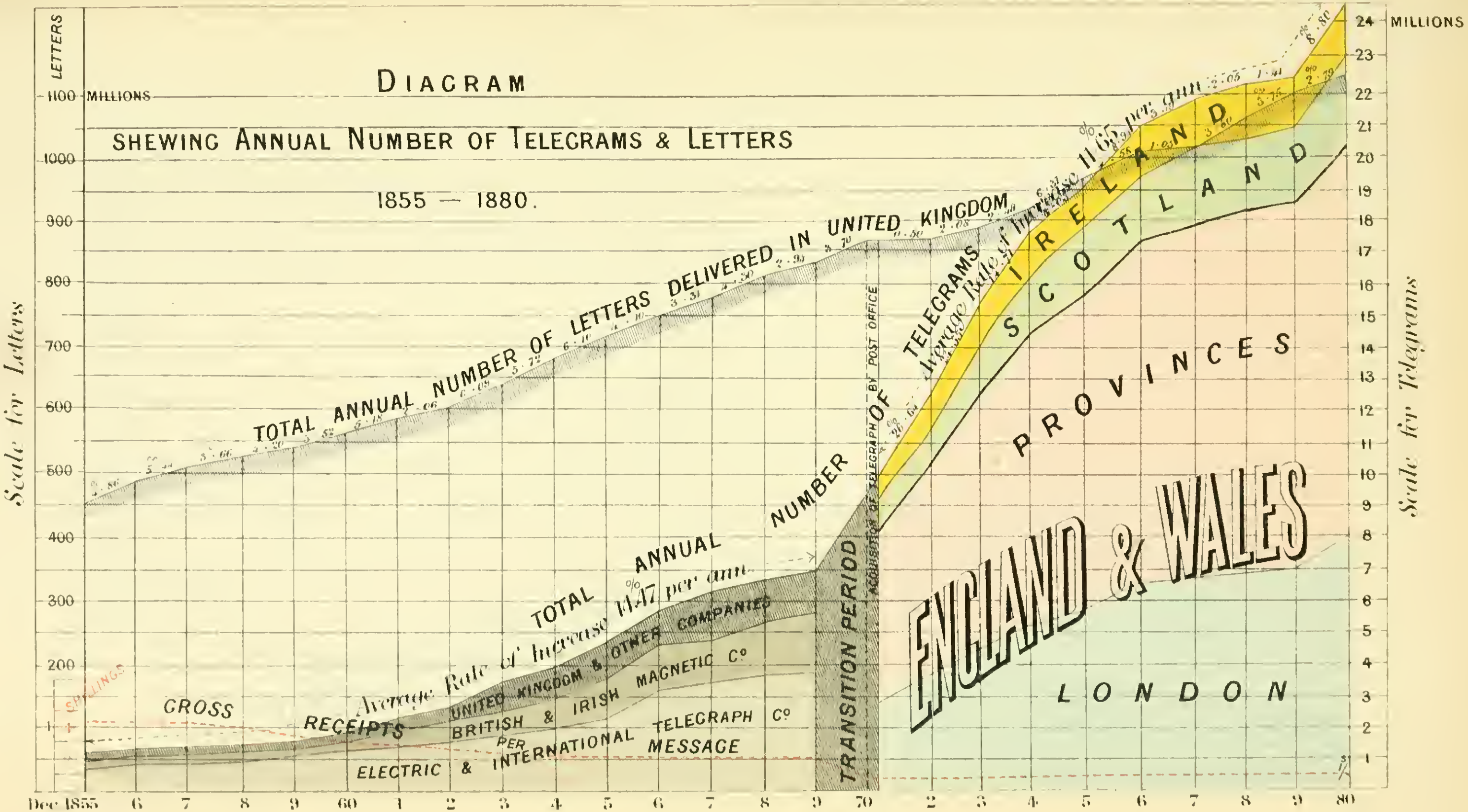
* See Table IV, Appendix.



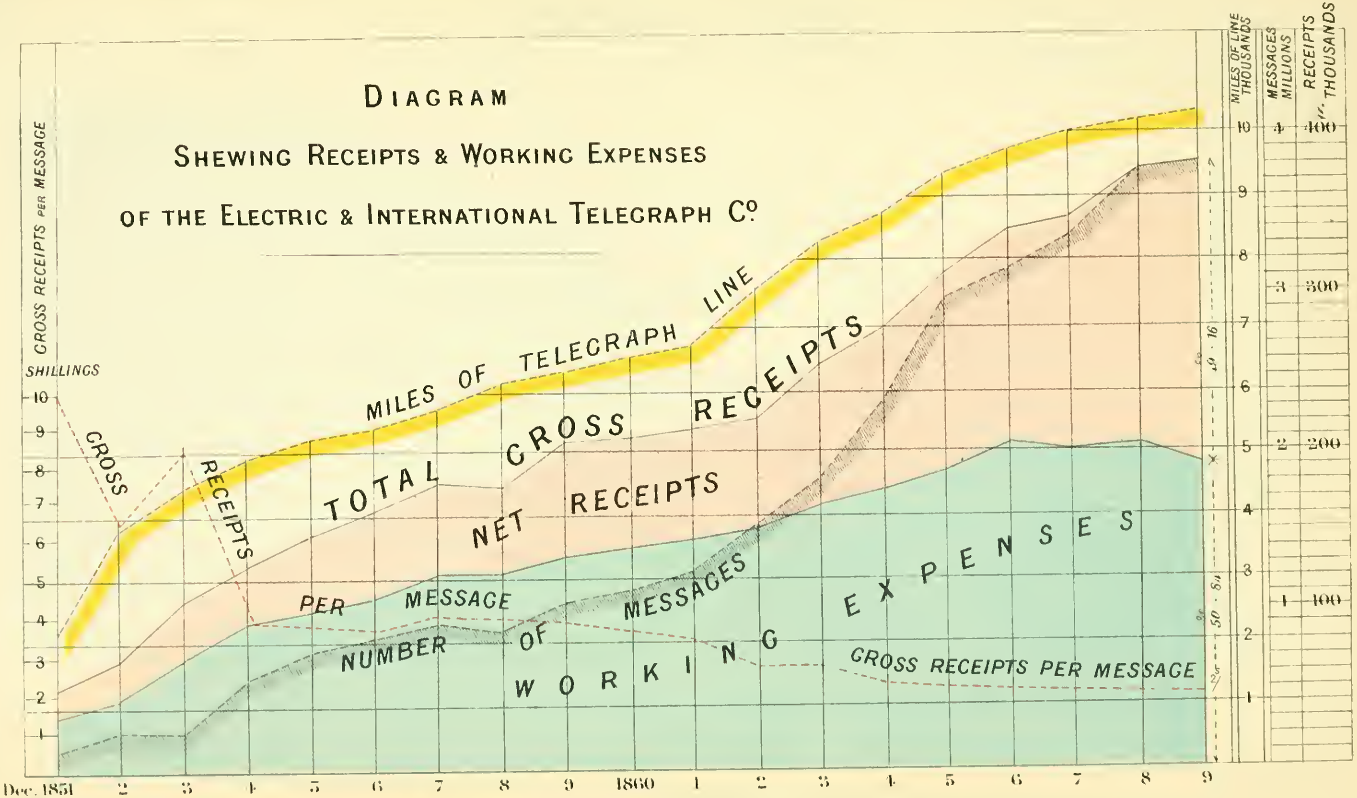
DIAGRAM

SHEWING ANNUAL NUMBER OF TELEGRAMS & LETTERS

1855 — 1880.

Journal of Statistical Society. 1881.

Plate 2



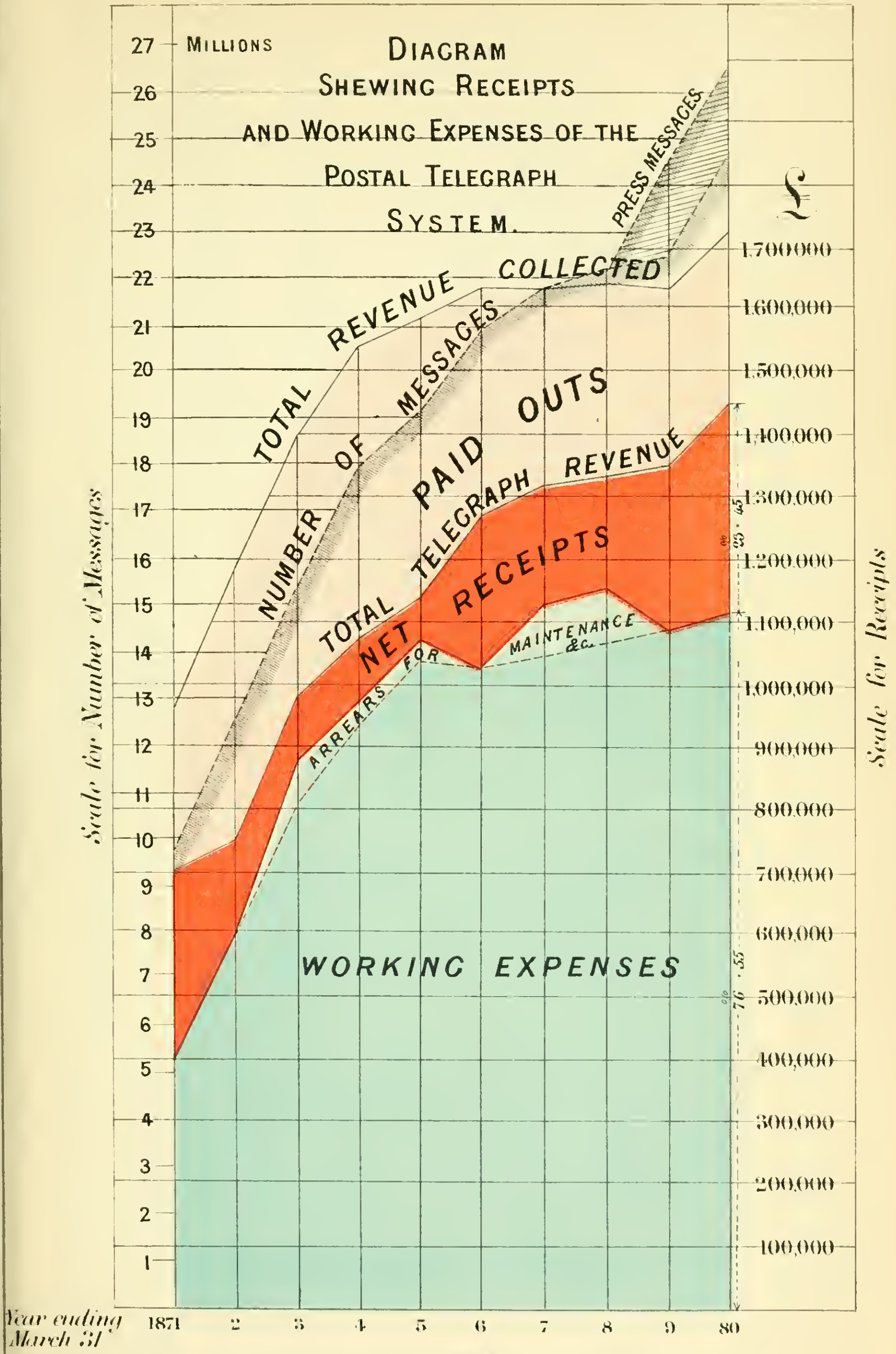
DIAGRAM

SHEWING RECEIPTS & WORKING EXPENSES

OF THE ELECTRIC & INTERNATIONAL TELEGRAPH Cº

Journal of Statistical Society 1881.

Plate 3.



Journal of Statistical Society 1881.

APPENDIX. TABLE I.—*Electric and International Telegraph Companies. Reduction of Tariff*, 1850-67.

Year.	Miles of Line.	Number of Messages.	Increase per Cent.	Gross Receipts.	Increase per Cent.	Gross Receipts per Message.	Reduction per Cent.	Reduction of Tariff.
	Miles.	No.	Per cent.	£	Per cent.	*s.* *d.*	Per cent.	
1850	1,786							
'51	2,122	99,216	—	49,865	—	10 −½	—	= British Telegraph Company started. March maximum charge reduced to 8*s.* 6*d.*; and in November, 100 miles 2*s.* 6*d.*, over 100 miles 5*s.*
'52	3,709	211,137	112·81	67,524	35·41	6 4¾	− 36·31	
'53	4,409	245,793	16·41	104,184	54·29	8 5¾	+ 32·57	
'54	4,954	572,116	132·81	123,231	18·28	4 3¾	− 49·14	= May, 1854, sundry large reductions
'55	5,228	745,880	33·39	144,928	17·61	3 10¾	− 9·45	= August, 1855. 50 miles 1*s.* 6*d.*, 100 miles 2*s.*, 150 miles 3*s.*, beyond 4*s.*; addresses free
'56	5,398	812,323	8·91	163,253	12·64	4 −¼	+ 3·21	
'57	5,637	881,271	8·49	180,734	10·71	4 1¼	+ 2·07	
'58	6,103	870,143	− 1·26	177,638	− 1·71	4 1	− 0·51	
'59	6,272	1,025,269	17·83	201,674	13·53	3 11¼	− 3·57	
'60	6,541	1,117,364	8·98	207,916	3·10	3 8½	− 5·82	
'61	6,727	1,201,515	7·53	213,584	2·72	3 6¾	− 3·93	= London and Provincial Telegraph Company's London messages reduced to 6*d.*
'62	7,597	1,534,590	27·72	219,441	2·74	2 10¼	− 19·88	= 25 miles 1*s.*, 50 miles 1*s.* 6*d.*, 100 miles 2*s.*, 200 miles 2*s.* 6*d.*, 300 miles 3*s.*, 400 miles and beyond 5*s.*
'63	8,230	1,825,427	18·95	254,360	15·91	2 9½	− 2·19	
'64	8,659	2,356,406	29·09	278,063	9·32	2 4¼	− 15·67	= March, 1864. Maximum to Scotland 3*s.*, and in June to Great Britain 3*s.*; July, 1864. 50 miles 1*s.*, 100 miles 2*s.*, 200 miles 2*s.* 6*d.*, 300 miles 3*s.*
'65	9,306	2,971,084	26·09	314,026	12·94	2 1½	− 9·73	= July 1865. 100 miles 1*s.*, 200 miles 1*s.* 6*d.*, over 200 miles 2*s.*
'66	9,740	3,150,149	6·03	336,457	7·14	2 1¾	+ 0·98	
'67	10,007	3,351,910	6·41	316,740	3·06	2 −¾	− 3·88	
			+ 461·45 − 1·26		+ 219·40 − 1·71		− 160·08 + 38·83	
			16) + 460·19		16) + 217·69		16) − 121·25	
Avg. inc. per cent. per ann.			+ 28·76		+ 13·61		− 7·58	Average reduction per cent. per annum
Ditto initial and terminal periods			Per cent. − 24·61		Per cent. + 12·89		Per cent. − 9·42	

Note.—The mileage receipts and number of messages are extracted from Mr. Weaver's statement.

TABLE II.—*Electric and International Telegraph Company. Gross*

[Extracted from the Company's

Year ending 31st December.	Miles of Line.	Number of Messages.	Gross Receipts (ex-Porterage).	Working Expenses.			
				Salaries and Wages.	Maintenance.		
					Labour.	Material.	Total.
			£	£	£	£	£
1851	2,122	99,216	49,866	12,175	Not given separately		9,046
'52	3,709	211,137	67,525	16,812	„		12,663
'53	4,409	245,793	104,184	30,929	„		18,872
'54	4,954	572,116	123,231	46,234	„		19,821
'55	5,228	745,880	144,928	46,279	„		21,041
'56	5,348	812,323	161,178	48,552	„		19,618
'57	5,637	881,271	180,735	50,452	16,020	9,196	25,216
'58	6,103	870,143	177,638	52,642	16,677	13,725	30,402
'59	6,272	1,025,269	201,674	57,505	19,034	14,746	33,780
'60	6,541	1,117,364	207,916	58,814	19,723	19,311	39,032
'61	6,727	1,201,515	213,585	60,269	20,005	18,677	38,682
'62	7,597	1,534,590	219,442	64,305	18,522	20,825	39,347
'63	8,230	1,825,427	254,361	68,746	21,741	31,269	53,010
'64	8,659	2,356,406	278,064	73,168	21,457	34,057	55,514
'65	9,306	2,971,084	314,027	80,537	30,208	27,950	58,158
'66	9,740	3,150,149	336,458	88,236	38,327	28,778	67,105
'67	10,007	3,351,910	346,740	94,831	29,177	27,545	56,722
'68	10,160	3,755,340*	375,534	97,771	36,073	23,754	59,827
'69† ...	10,289	3,801,740†	380,174†	101,510†	27,276†	15,291†	42,507†

* Estimated.

† Estimated for the twelve months. The Company's accounts for this year, including the

31 Dec., 1868 to 28 Jan., 1869	—	—	411,855	109,968	29,483	16,566	46,049

Receipts, Working Expenses, and Net Revenue from 1851 *to* 1869.

half-yearly reports.]

Working Expenses.			Percentage of Working Expenses.	Net Receipts.	Gross Receipts per Message.	Net Receipts per Message.	Year ending 31st Dec.
Repairs of Cables.	Miscellaneous, Stationery, Law Charges, &c.	Total.					
£	£	£	Per cent.	£	s. d.	s. d.	
—	9,521	30,742	61·65	19,124	10 –½	3 10¼	1851
—	14,018	43,493	64·41	24,032	6 4¾	2 3¼	'52
—	22,711	72,512	69·60	31,672	8 5¾	2 7	'53
—	26,622	92,677	75·21	30,554	4 3¾	1 –¾	'54
—	33,808	101,128	69·78	43,800	3 10¾	1 2¼	'55
8,502	31,616	108,288	67·18	52,890	3 9¾	1 3 8/4	'56
8,896	36,099	120,663	66·76	60,072	4 1¼	1 4¼	'57
7,165	31,110	121,319	68·30	56,319	4 1	1 3½	'58
7,604	33,963	132,852	65·87	68,822	3 11¼	1 4¼	'59
6,627	33,730	138,205	66·37	69,711	3 8½	1 3	'60
4,645	38,479	142,075	66·52	71,510	3 6¾	1 2¼	'61
2,485	45,941	152,078	69·30	67,364	2 10¼	– 10½	'62
3,526	39,448	164,730	64·76	89,631	2 9½	– 11¾	'63
3,736	42,739	175,157	62·99	102,907	2 4¼	– 10½	'64
4,737	43,519	186,951	59·53	127,076	2 1½	– 10¼	'65
1,627	45,988	202,956	60·32	133,502	2 1¾	– 10¼	'66
5,215	44,247	201,015	57·97	145,725	2 –¾	– 10½	'67
4,515	41,578	203,691	54·24	171,843	2 –	– 11	'68
4,994†	35,790†	184,801†	48·61	195,373†	2 –	1 –⅓	'69

receipts and expenses for the thirteen months ended the 28th January, 1870, as under—

5,411	38,773	200,201	—	—	—	—	—

TABLE III.—*The Electric and International and British and Irish Magnetic Telegraph Companies' Gross Receipts per Message from* 1857 *to* 1869.

Year.	Number of Messages E. and I. and B. and I. Companies (combined).	Increase per Cent. per Annum	Gross Receipts E. and I. and B. and I. Companies (combined).	Increase per Cent. per Annum.	Gross Receipts per Message.	Percentage of Reduction.
	No.		£		*s.*	Per cnt.
1857	1,237,457	—	251,941	—	4·07	− 3·68
'58	1,276,751	3·18	250,474	− 0·58	3·92	−10·71
'59	1,575,149	23·36	275,705	10·08	3·50	− 1·43
'60	1,725,696	9·56	297,781	8·00	3·45	− 5·80
'61	1,891,253	9·60	307,062	3·12	3·25	−11·08
'62	2,206,140	16·64	318,462	3·71	2·89	− 5·54
'63	2,652,851	20·25	362,629	13·87	2·73	−15·02
'64	3,386,548	27·65	392,913	8·35	2·32	− 9·91
'65	4,222,349	24·68	442,204	12·55	2·09	− 2·87
'66	4,670,789	10·62	473,702	7·12	2·03	− 1·42
'67	4,818,290	3·16	493,379	4·16	2·05	
'68	5,383,570	11·73	538,357	9·12	2·00	
'69	5,475,500	1·71	547,550	7·71	2·00	
		12)162·14	—	81·79	—	12) −67·46
				−0·58		
				12)81·21	Percentage of reduction per annum....	− 5·62
Average increase per cent. per annum		13·51	—	6·77		
		Per cnt.		Per cnt.		Per cnt.
Average increase or decrease per cent. per annum, initial and terminal periods		13·19	—	6·68	—	− 5·57

Table IV.—*Electric and International Telegraph Company. Ratio of Expenditure to Gross Receipts, exclusive of Porterage and Sums Paid Out in the Year* 1869.

[Extracted from reports of the Electric and International Telegraph Company.]

	£	s.	d.	Percentage on Receipts.
Receipts for messages, intelligence, maintenance, contracts, interest and transfer fees, less porterage paid out	411,855	13	–	
Expenditure as under—				
Salaries and wages	109,968	17	9	26·70
Station expenses	8,367	11	–	2·03
Rent, taxes, gas and insurance	17,675	12	11	4·30
Books, stationery and printing	8,947	8	2	2·17
Postage	634	16	8	0·15
Law charges	368	6	5	0·09
Direction and audit	2,500	–	–	0·61
Maintenance (labour and materials)	46,048	11	–	11·18
Contributions to sickness fund	278	4	7	0·07
Cost of repairing submarine cables	5,411	8	8	1·31
Total	200,200	17	2	48·61

Note.—The receipts and expenditure are for the thirteen months ending 31st January, 1870.

Table V.—*British and Irish Magnetic Telegraph Company. Ratio of Expenditure to Gross Receipts for the Year* 1869.

[Extracted from reports of the British and Irish Magnetic Telegraph Company.]

	£	s.	d.	Percentage on Receipts.
Messages, news, royalty, rents, &c., for the year ending 31st December, 1869	167,376	2	9	
Expenditure as under—				
Engineering staff and materials for maintenance of lines and instruments	23,190	12	3	13·86
Salaries and wages, commercial department	41,809	11	10	24·98
Petty expenses at 513 stations	2,629	7	11	1·57
Rents and taxes	13,283	13	–	7·94
Stationery and printing	4,007	13	11	2·39
Clothing and liveries, &c.	758	5	11	0·45
Repairs—Stations and offices	553	4	–	0·33
Newspaper and news reports	1,534	–	–	0·92
Insurance, postage and miscellaneous	919	11	11	0·55
Law charges	148	16	–	0·09
Travelling expenses	409	–	8	0·24
Direction	1,050	–	–	0·63
Audit	100	–	–	0·66
Total	90,383	17	5	54·01

Table VI.—*Gross and Net Revenue from the Telegraph Service since the Transfer to the Post Office.*

1 Year ended 31st March.	2 Gross Revenue from Message and from Wires Rented by Cable Companies.	Percentage of Increase	3 News, Produce, and Special Wire Rentals.	Percentage of Increase.	4 Private Wire Rentals.	Percentage of Increase.	7 Total Revenue Collected.	Percentage of Increase
	£	Per cnt.	£	Per cnt.	£	Per cnt.	£	Per cnt.
1871	908,351	—	31,975	—	16,763	—	971,217	—
'72	1,095,375	20·60	39,175	22·52	32,578	94·34	1,183,157	21·83
'73	1,306,055	19·24	43,300	10·53	37,817	16·08	1,401,077	18·42
'74	1,403,793	7·48	52,688	21·68	42,063	11·23	1,527,812	9·04
'75	1,448,823	3·20	58,478	10·99	50,849	20·89	1,576,647	3·19
'76	1,479,477	2·12	58,165	0·53	52,884	4·00	1,623,838	2·99
'77	1,474,814	0·32	65,041	11·82	58,942	11·46	1,621,599	0·14
'78	1,486,990	0·83	64,367	1·04	58,329	1·14	1,633,847	0·75
'79	1,448,043	2·62	71,813	11·57	62,010	6·31	1,603,587	1·85
'80	1,549,866	7·04	76,269	6·21	66,349	7·00	1,716,728	7·05
		9)63·4		9)66·89		9)172·45		9)65·26
Avge. ann. incr.		7·05		7·43		19·16		7·25
Ditto, initial and terminal 9 years	—	6·12	—	10·14	—	16·52	—	6·53

1 Year ended 31st March.	10 Total Telegraph Revenue.	Percentage of Increase.	11 Working Expenses.	Percentage of Increase.	12 Net Receipts (including News, &c., and Private Wire Rentals).	Percentage of Increase or Decrease.
	£	Per cnt.	£	Per cnt.	£	Per cnt.
1871	697,934	—	394,477	—	303,457	—
'72	751,611	10·87	591,776	50·02	195,835	− 47·33
'73	989,921	31·71	874,946	47·85	114,975	− 28·07
'74	1,083,466	9·45	967,790	10·61	115,676	+ 0·61
'75	1,137,079	4·95	1,077,347	11·32	59,732	− 48·36
'76	1,276,662	12·28	1,031,524	4·25	245,138	+ 310·40
'77	1,313,107	2·85	1,123,790	8·95	189,317	− 22·77
'78	1,333,542	1·55	1,164,114	3·59	169,428	− 11·51
'79	1,346,892	1·01	1,089,392	6·42	257,500	+ 51·98
'80	1,452,489	7·84	1,111,547	2·03	340,942	+ 32·40
		9)82·51		9)145·04		
Avge. ann. incr.		9·17		16·11		
Ditto, initial and terminal 9 years	—	8·84	—	12·20	—	1·30

Table VII.—*Postal Telegrams. Total Telegraph Revenue (less News Produce and Special Wire Rentals, and Private Wire Rentals), Working Expenses, and Net Revenue.*

[Extracted from the Twenty-sixth Report of the Postmaster General for 1880, p. 60.]

Year ended 31st March.	Number of Messages.	Total Telegraph Revenue.	News, Produce, and Special Wire Rentals.	Private Wire Rentals.	Total Telegraph Revenue (less News, &c., Private Wires, &c.).	Working Expenses.	Net Revenue (less News, Private Wires, &c.).	Gross Receipts per Message.		Net Receipts per Message.	
	No.	£	£	£	£	£	£	*s.*	*d.*	*s.*	*d.*
1871	9,850,177	697,934	31,975	16,763	649,196	394,477	254,719	1	3¾	–	6¼
'72	12,473,796	751,611	39,175	32,578	679,858	591,776	88,082	1	1	–	2¾
'73	15,535,780	989,921	43,300	37,817	908,804	874,946	33,858	1	2	–	–½
'74	17,821,530	1,083,466	52,688	42,063	988,715	967,790	20,925	1	1¼	–	–¼
'75	19,253,120	1,137,079	58,478	50,849	1,027,752	1,077,347	49,595	1	–¾	loss	
'76	20,973,535	1,276,662	58,165	52,884	1,165,613	1,031,524	134,089	1	1¼	–	1½
'77	21,726,143	1,313,107	65,041	58,912	1,189,124	1,123,790	65,334	1	1¼	–	–¾
'78	22,171,867	1,333,542	64,367	58,329	1,210,846	1,164,114	46,732	1	1¼	–	–½
'79	24,459,775	1,346,892	71,813	62,010	1,213,069	1,089,392	123,677	–	11¾	–	1¼
'80	26,547,137	1,452,489	76,269	66,349	1,309,871	1,111,547	198,324	–	11¾	–	1¾
		Per cnt. (100)				Per cnt. (76·50)	(23·50)				

TABLE VIII.—*Increase per Cent. of Number of Messages since the Transfer to the Post Office.*

[Extracted from the Postmaster General's Report for 1880.]

Year.	England and Wales. Number of Messages.					
	Provinces.	Per-centage of Increase.	London.	Per-centage of Increase.	Total.	Per-centage of Increase.
		Per cnt.		Per cnt.		Per cnt.
1870–71	5,299,882	—	2,863,821	—	8,163,703	—
'71–72	6,594,590	24·43	3,612,772	26·15	10,207,362	25·03
'72–73	8,022,151	21·65	4,577,015	26·69	12,599,166	23·44
'73–74	9,233,854	15·09	5,254,547	14·80	14,488,401	14·99
'74–75	10,124,661	9·66	5,652,033	7·56	15,776,694	8·90
'75–76	10,883,282	7·49	6,350,714	12·36	17,233,996	9·24
'76–77	11,232,704	3·22	6,561,930	3·33	17,794,634	3·25
'77–78	11,392,098	1·41	6,700,504	2·11	18,092,602	1·67
'78–79	11,592,899	1·77	8,830,019	31·78	20,422,918	12·88
'79–80	12,392,996	6·90	9,854,566	11·60	22,247,562	8·94
		9)91·62		9)136·38		9) 108·34
Avge. ann. incr.		10·18		15·15		12·04
Ditto initial and terminal 9 years	—	9·90	—	14·72	—	11·78

Year.	Number of Messages.					
	Scotland.	Per-centage of Increase.	Ireland.	Per-centage of Increase.	Total.	Percentage of Increase.
		Per cnt.		Per cnt.		Per cnt.
1870–71	1,080,189	—	606,285	—	9,850,177	—
'71–72	1,388,434	28·53	878,000	44·81	12,473,796	26·64
'72–73	1,761,298	26·86	1,175,316	33·86	15,535,780	24·55
'73–74	2,009,893	14·11	1,323,236	12·58	17,821,530	14·71
'74–75	2,132,787	6·12	1,343,639	1·54	19,253,120	8·03
'75–76	2,287,359	7·25	1,452,180	7·84	20,973,535	8·94
'76–77	2,402,347	5·02	1,529,162	5·54	21,726,143	3·59
'77–78	2,490,776	3·68	1,588,489	3·88	22,171,867	2·05
'78–79	2,477,003	−0·55	1,559,854	−1·80*	22,489,562	1·44
'79–80	2,704,574	9·19	1,595,001	2·25†	24,467,771	8·80
		100·76 0·55		112·30 −1·80		9)98·75
						10·97
		9)100·21		9)110·50		
Avge. ann. incr.		11·13		12·28		
Ditto initial and terminal 9 years	—	10·74	—	11·34	—	10·64

* Press messages deducted 1,976,211.
† ,, ,, 2,079,366.

TABLE IX.—*Number of Public Messages forwarded by the undermentioned Companies.*

[Extracted from Mr. Scudamore's reports.]

Telegraph Companies.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.
Electric and International	717,104	768,218	844,668	870,143	1,025,269	1,117,364	1,201,515	1,531,590	1,778,789	1,915,465	2,196,046	3,150,149
British and Irish Magnetic	264,727	316,420	356,186	406,608	549,880	608,332	689,738	671,550	827,424	1,030,142	1,251,265	1,520,640
South Eastern Railway	35,698	36,855	40,309	37,394	43,156	48,897	55,085	62,825	62,968	69,623	88,711	103,386
London Brighton and South Coast Railway	—	1,199	5,850	6,941	11,425	14,664	21,680	30,024	43,208	52,942	66,523	73,139
London District	—	—	—	—	—	74,582	144,022	213,849	247,606	308,032	316,272	214,496
United Kingdom	—	—	—	—	—	—	11,549	133,514	226,729	518,651	743,870	720,179
Total	1,017,529	1,122,722	1,247,013	1,321,086	1,629,730	1,863,839	2,123,589	2,676,352	3,186,724	3,924,855	4,662,687	5,781,989
Annual rate of increase per cent.		0·51	11·07	5·94	23·36	14·36	13·94	26·03	19·07	23·16	18·80	23·99

	Electric and International Telegraph Company.	British and Irish Magnetic Company.	South Eastern Company (Last Three Years).	All the Companies.
Average annual rate of increase of messages per cent., 1855 to 1867	14·986	17·597	18·176	16·36

TABLE X.—*Number of*

[Extracted from the

Year.	England and Wales.						Scotland.
	Country.	Increase per Cent.	London.	Increase per Cent.	Total.	Increase per Cent.	
		Per cnt.		Per cnt.		Per cnt.	
1839....	—	—	—	—	59,982,520	—	7,623,148
'40....	88,071,308	—	43,932,217	—	132,003,525	120·06	18,554,167
'41....	103,395,677	17·40	51,075,444	16·26	154,471,121	17·02	21,234,772
'42....	111,115,489	7·50	52,775,224	3·33	163,890,713	6·10	22,215,583
'43...	117,704,474	5·90	55,790,153	5·71	173,494,627	3·45	23,473,216
'44....	129,096,023	9·68	60,556,396	8·54	189,652,419	9·32	26,502,077
'45....	147,227,431	14·04	66,926,197	10·52	214,153,628	12·92	28,669,168
'46....	162,624,024	10·45	73,254,731	9·46	235,878,755	10·15	31,135,060
'47....	175,023,407	7·62	78,388,357	7·01	253,411,764	7·43	33,261,163
'48....	180,716,102	3·26	79,663,900	1·63	260,380,002	2·75	33,563,101
'49....	187,382,329	3·69	79,806,081	0·18	267,188,410	2·61	34,746,876
'50....	192,508,628	2·74	83,744,014	4·93	276,252,642	3·39	35,427,534
'51....	199,746,304	3·76	88,405,451	5·56	288,151,755	4·31	36,512,649
'52....	212,633,733	6·45	91,574,630	3·59	304,208,363	5·57	37,843,182
'53....	232,504,177	9·35	97,218,337	6·16	329,722,514	8·39	40,675,310
'54....	254,922,967	9·65	103,377,728	6·34	358,300,696	8·67	44,114,009
'55....	263,037,827	3·18	105,492,462	2·04	368,530,340	2·85	45,853,002
'56....	275,453,824	4·72	112,856,029	6·98	388,309,853	5·37	48,232,942
'57....	291,636,000	5·88	118,367,000	4·88	410,003,000	5·59	51,612,000
'58....	300,506,000	3·04	127,365,000	7·61	427,871,000	4·36	50,795,000
'59....	316,649,000	5·37	129,266,000	1·49	445,916,000	4·22	52,063,000
'60....	324,850,000	2·59	137,174,000	6·11	462,024,000	3·61	53,751,000
'61....	340,050,000	4·68	146,629,000	6·90	486,679,000	5·34	56,552,000
'62....	345,412,000	1·58	151,619,000	3·40	497,031,000	2·13	57,380,000
'63....	368,325,485	6·64	161,000,000	6·19	529,325,485	6·50	61,401,678
'64....	390,128,908	5·92	170,191,853	5·71	560,320,761	5·85	64,261,483
'65	Not given separately	3·64	Average Not given separately	Average 3·74	597,277,616	6·60	67,048,891
'66		3·64		3·74	623,400,000	4·37	70,100,000
'67		3·64		3·74	640,285,400	2·71	75,648,300
'68		3·64		3·74	670,046,000	4·65	77,812,000
'69		3·64		3·74	687,951,000	2·67	80,930,000
'70		3·64		3·74	714,278,000	3·83	83,265,000
'71....	501,000,000	3·64	220,000,000	3·74	721,000,000	0·94	80,000,000
'72....	510,000,000	1·80	227,000,000	3·18	737,000,000	2·22	82,000,000
'73....	518,000,000	1·57	238,000,000	4·85	756,000,000	2·58	84,000,000
'74....	553,579,000	6·87	250,474,000	5·24	804,053,100	6·36	90,195,300
'75....	580,081,400	4·79	266,771,000	6·51	846,852,400	5·32	90,976,400
'76....	594,519,600	2·49	261,522,800	− 1·97	856,042,000	1·09	91,120,700
'77....	598,776,000	0·72	285,192,700	9·05	883,968,700	3·26	99,515,300
'78....	626,499,800	4·63	295,803,300	3·72	922,303,100	4·34	98,991,200
'79....	640,033,900	2·16	310,077,900	4·83	950,111,800	3·01	101,948,300
		39)205·60		204·09 1·97		40)321·91	
				39)202·12			
Average annual increase		5·27		5·18		8·05	
Average annual increase, taking initial and terminal		5·22		5·14		7·14	

Letters Delivered.

Postmaster General's reports.]

Increase per Cent.	Great Britain.	Increase per Cent.	Ireland.	Increase per Cent.	United Kingdom.	Increase per Cent.	Year.
Per cnt.		Per cnt.		Per cnt.		Per cnt.	
—	67,605,668	—	8,301,904	—	75,907,572	—	1839
143·38	150,557,692	122·70	18,210,642	119·36	168,768,344	122·34	'40
14·46	175,705,893	16·71	20,794,297	14·18	196,500,191	16·43	'41
4·62	186,106.296	5·92	22,328,154	7·38	208,434,451	6·07	'42
6·87	196,967,843	5·84	23,482,463	5·17	220,450,306	5·77	'43
11·62	216,154,496	9·74	25,937,188	10·45	242,091,684	9·82	'44
8·18	242,822,796	12·34	28,587,993	10·22	271,410,789	12·91	'45
8·60	267,013,815	9·96	32,572,947	13·94	299,586,762	10·38	'46
6·83	286,672,927	7·36	35,473,316	8·90	322,146,243	7·53	'47
0·91	293,943,103	2·54	34,887,481	−1·66	328,850,184	2·07	'48
3·53	301,935,286	2·72	35,463,913	1·66	337,399,199	2·61	'49
1·96	311,680,176	3·23	35,388,895	−0·21	347,069,071	2·87	'50
3·06	324,664,404	4·16	35,982,782	1·68	360,647,187	3·91	'51
3·64	342,051,545	5·36	37,449,953	4·08	379,501,499	5·23	'52
7·48	370,397,824	8·29	40,419,665	7·93	410,817,489	8·25	'53
8·46	402,414,705	8·64	41,234,596	2·25	443,649,301	7·99	'54
3·94	414,383,342	2·97	41,832,834	1·22	456,216,176	2·83	'55
5·19	436,542,795	5·35	41,851,008	0·04	478,393,803	4·86	'56
7·00	461,615,000	5·75	42,806,000	2·28	504,421,000	5·44	'57
−1·58	478.666,000	3·69	44,208,000	3·28	522,874,000	3·66	'58
2·50	497,979,000	4·04	46,817,000	5·90	544,796,000	4·20	'59
3·24	515,775,000	3·57	48,227,000	3·01	564,002,000	3·52	'60
5·21	543,231,000	5·32	50,009,000	3·70	593,240,000	5·18	'61
1·46	554,411,000	2·06	51,060,000	2·10	605,471,000	2·06	'62
7·01	590,727,163	6·55	51,497,455	0·82	642,324,608	6·09	'63
4·66	624,582,244	5·73	54,502,578	5·87	679,084,822	5·72	'64
4·34	664,326,507	6·37	56,140,500	3·01	720,467,007	6·10	'65
4·55	693,500,000	4·39	56,500,000	0·64	750,000,000	4·10	'66
7·91	715,933,700	3·23	58,897,300	4·24	774,831,000	3·31	'67
2·86	747,858,000	4·46	60,260,000	2·32	808,118,000	4·30	'68
4·00	768,881,000	2·81	63,033,000	4·60	831,914,000	2·94	'69
2·88	797,543,000	3·73	65,179,000	3·40	862,722,000	3·70	'70
−3·92	801,000,000	0·43	66,000,000	1·26	867,000,000	0·50	'71
2·50	819,000,000	2·25	66,000,000	—	885,000,000	2·08	'72
2·44	840,000,000	2·57	67,000,000	1·51	907,000,000	2·49	'73
7·37	894,248,400	6·46	70,004,900	4·48	964,253,300	6·31	'74
0·86	937,828,800	4·87	70,563,300	0·80	1,008,392,100	4·58	'75
0·16	947,162,700	1·00	71,792,100	1·74	1,018,955,200	1·05	'76
9·21	983,484,000	3·83	74,248,200	3·42	1,057,732,300	3·80	'77
−0·53	1,021,294,300	3·84	76,078,500	2·47	1,097,372,800	3·75	'78
2·99	1,052,060,100	3·01	75,937,400	−0·19	1,127,997,500	2·79	'79
325·88 6·03		40)323·79		269·31 2·06		40)318·54	
40)319·85				40)267·25			
7·99		8·09		6·68		7·96	
6·70		7·10		5·69		6·98	

Discussion *on* Mr. R. Price Williams's Paper.

Mr. E. Graves (Engineer in Chief of the Telegraph Department of the General Post Office) said he did not intend to follow Mr. Williams in his speculations as to the effect of any reduction that might be made in the telegraphic tariffs. At the same time, he commended the care, industry, and thought, which that gentleman had devoted to the subject. In many respects the principles upon which Mr. Williams had advocated a reduction of the tariff, were principles which had been accepted by the department. He regretted, however, that Mr. Williams did not, before deciding upon the exact terms of his paper, go to the post office for a little more accurate information on some particular heads. He (the speaker) had, of course, listened to the paper, but it was impossible for him to attempt to do anything more than merely remark upon a few subjects that immediately occurred to him. He had noted one or two things: first, he questioned the comparison between the working expenses of the Electric Telegraph Company and the Post Office. Undoubtedly the proportion of expenses incurred by the Post Office very much exceeded that incurred by the Electric Telegraph Company, but why? Independent of special circumstances, that rendered everything now in 1880 more costly than it was in 1869, the Electric Telegraph Company, as Mr. Williams had told the meeting, by means of its agreements and arrangements with nearly all the railway companies in the kingdom, under which they maintained their wires, &c., and under which they kept clerks at the railway stations, used the railway instruments and wires, and were paid at least a portion of the salaries of the individuals required to work these instruments; further, they had, to a greater or less extent, in the majority of cases, to the entire extent they could wish, the right of free carriage for all their goods, and of free passes for all their servants, a condition of things which was exactly reversed in the case of the Post Office. Mr. Williams had compared the working expenses with the receipts of the Electric Telegraph Company in 1869, and told the meeting correctly, so far as the figures went, that they amounted to 48 per cent., but they were not 48 per cent. of the message receipts, they were not entirely due to the receipts derived from message traffic, but 48 per cent. of the Electric Telegraph Company's earnings, and as Mr. Williams had himself stated, a portion of those earnings was derived from the maintenance of works for which the Post Office has no equivalent, amounting, perhaps, to 30,000*l.* or 40,000*l.* a-year, so that in comparing the working expenses, they must strike that amount off the receipts. They must also remember another thing he had said, that the Electric Telegraph Company had received a large and solid payment from the railway companies, besides privileges that were worth a good deal of money; the Post Office paid, he did not remember the exact figures, but it was a sum certainly exceeding 30,000*l.* per annum for way lease for its wires over railways alone, and for the maintenance of its wires 40,000*l.* or 50,000*l.* The consequence was that the mere transfer of the lines from the Electric Telegraph Company, with its bargains, to the State, with its burdens, meant a difference of pretty nearly 100,000*l.* Mr. Williams had said that the normal increase of the Post Office receipts since 1870 had been 10 per cent. No doubt that as a fact was correct, but when dissected, the fact might be represented in a very different light. It was not merely the result of the tariff reduction from nearly 2*s.* to little over 1*s.* That no doubt was a great factor, but a greater factor, he ventured to say, was the multiplication of offices and conveniences throughout the whole kingdom. In the first year—and he was now speaking from memory—that is to say, in 1870, as contrasted with 1869, the increase in the number of messages was something like 29 per cent., in 1872 24 per cent., in 1873 something like 21 per cent., the following year 7 per cent., the next year less, and so on until 1878 showed practically nothing per cent. It was an absolute increase of something like 10,000*l.* upon 20 million messages. Since then he was happy to say that there had been an upward spring, not derived from a reduction of tariff or the extension of facilities, but derived simply from a healthy business trade springing up in the country, and at present the rate of increase was something more than the normal one of 10 per cent. Mr. Williams had assumed that the existing messages contained about thirty-five words each; that was, twenty words were taken for the average of the body of the messages, and fifteen for addresses. As a matter of fact he might say that the average number of words now in addresses was eleven, and that in the body of the telegram seventeen, making a total of twenty-eight. Mr. Williams also assumed that if they took out of a certain number of million messages those at a 1*s.* a-piece, they arrived at a certain total of receipts which fall short of the actual receipts by many thousands, and he therefore came to the conclusion that 10 per cent. of the messages now sent exceeded twenty words, assuming that there were so many containing twenty-five, thirty, forty words and so on. In fact, the number of messages sent exceeding twenty words was barely 5 per cent., and when they did exceed twenty words they frequently ran to eighty and one hundred words. He (the speaker) also thought that, because persons could now send for the same payment any number of words not exceeding twenty, he was fairly right in saying if they chose to send only five words, it was because they wished to send no more than that number, and consequently he did not see why the reduction of the tariff should create the want to send a greater number of messages of that length. In conclusion, Mr. Graves pointed out that Mr. Williams was inaccurate in saying that in London particularly the rates for local messages were kept at 6*d.* until the post office undertook the direction of the telegraphs. The rates were 1*s.* per message from any part of London to another for all communications by the wires of the District Telegraph Company. The rate commenced at 4*d.* for ten words, and by-and-by it was increased to 6*d.* as the minimum charge, which was found not to pay, and in 1866 the rate was increased to 1*s.* The Electric and Magnetic Companies never attempted to work London as a local field, and did only charge *6d.* between their few offices therein. It must be remembered that all companies charged porterage when deliveries were effected over half-a-mile from the office.

Mr. J. W. Batten said he had come as a visitor to hear what his friend Mr. Williams had to say with regard to the reduction in price of telegraphic messages, but, in his opinion, what the public really wanted was not so much lower rates as greater speed, and this he thought would be accomplished by the union of the telephone with the telegraph. As a director of the United Telephone Company, it might be interesting to the meeting if he told them a few general facts with regard to the progress made by that company within the past few months, and what, if it were let alone, it would be able to do in the future. Let them for a moment go outside the arena of litigation which had been taking place, and in which they had unfortunately been trying to establish the rights of the inventors—Bell and Edison—and let them cross the Atlantic and see what had been done there. In America, as most of those present knew, postal telegraphs did not exist. A telegraph system was there in force and maintained by a private company in practical alliance with the government post office, but worked as a separate concern. What said that Company? Why this: that the union of the telephone and the telegraph had trebled their telegraphic receipts. It was a startling fact, no doubt, but it was easily accounted for. The public got what they really wanted—rapid communication by means of telephone and telegraph combined. A merchant in Liverpool told him (the speaker) that since the telephone had been erected between Manchester and Liverpool he could do as much work in three minutes as he used to be able to do by telegraph in three hours. Another merchant in the City of London recently told him that he could now get off from business two hours earlier than he used to do because of the telephone. It was that, he ventured to say, which would increase the number of messages, namely, placing each telephone subscriber in direct contact with the nearest telegraph station. In America, from every country station of the Telegraph Company there branched out to all the small villages, within five or six miles, or the private house of every gentleman in the district who wished to have it, a telephone wire, so that a gentleman wanting to send a message to Chicago, Baltimore, or New York, might do so sitting in his own room. Of course, the telephone wire did not stretch all the way to these places; but the sender of the telegram could, while sitting at his own table or desk, take up his telephone and say to the nearest postmaster, "Put me in communication with Mr. B., of New York." "Yes," says the postmaster. "I shall not be in town to-day," he might say to Mr. B. The answer was immediate, and if the telephone were near enough the office he could even hear the voice of Mr. B. replying, "I don't want you to-day. There is nothing important, and you can stay where you are." So that by means of the telephone and telegraph combined, instead of what might be considered now the obsolete form of the shilling messages, occupying a few hours to go between Manchester and Liverpool, people were able to have almost instantaneous communication; he, himself, while sitting in the company's office in the city, was able to talk with the five partners of a firm in Manchester at their private houses, two or three miles apart from each other. Could anything in telegraphy beat that? Having given a few more illustrations of the utility of the telephone, and the rapidity with which business is now being conducted through this medium, the speaker went on to say that he found from an examination of the statistics already collected that the Telephone Company were doing in London, with the few centres already open, one-tenth of what the Post Office were doing in the way of messages; and they had not injured the Post Office one sixpence. The revenue of the latter had not fallen off a fraction since the telephone came into use, it had actually increased. And he believed if the company were allowed to carry on its operations, that before the end of 1881, telephones would be put up in every chemist's shop in London, where any one desiring to use them would simply have to go in and pay a penny, and have a penny telelogue with the person at the other end. The penny telelogue he felt sure was capable of yielding a very large revenue. Then let them consider the benefits of its extension into the country where the telegraph did not and could not reach. Beyond the small market towns they all knew that the telegraph lines ceased, because it required a skilled operator to work the instruments, and of course the Post Office would not establish telegraphic communication with any place which could not guarantee 60*l.* a year for a skilled operator. Now what could not be done if the telephone were allied to the telegraph? Why, for the cost merely of a few pounds a wire could be run from every telegraphic post office to every village, however small, and there could be hung up in the small country shop a telephone by which any person could send a message to the nearest town, to be afterwards telegraphed on to its proper destination. It required no skill whatever to use it, it would cost but little, and would add a fresh charm to country life. There was no reason why in this way dozens of wires should not be stretching out into every part of the country, by which people might be able actually to converse with each other, whatever the distances. Supposing this were so, a nobleman or gentleman who wanted a friend living a few miles from him to come and dine with him, would simply have to go to the huckster's shop in the village, take up the telephone, and say to the nearest postmaster, "Please put me in communication with Mr. So-and-so, when the following colloquy might take place: "Are you going a hunting to day?" "No." "Well, will you and your daughters come over to dine with us this evening?" "Yes." And the thing was done. There was no difficulty about it whatever. He had no doubt that the telephone would ultimately supersede the telegraph wherever question and answer were required to follow each other instantaneously, because of its wonderful advantages. By the telephone also they were able not only to hear well, but actually to know who might be speaking to them, just as he was able to know who was speaking to him when he saw the speaker face to face and heard his voice. All that was needed was to have about a fortnight's experience in listening. It was a curious thing that they had all so accustomed themselves to what Professor Bell called "visible speech," that when a person was speaking to them fifty miles away, and they heard the voice simply through the telephone, without seeing the person's face, till they became accustomed to it, they were a little perplexed because they needed the experience of the eyes or the movements of the lips to aid them to follow the conversation; but this rapidly wore off, and after a few days the faculty of hearing was strengthened, and no further difficulty was experienced. Mr. Batten concluded by expressing a hope that the result of the recent litigation would be to unite the Post Office and the telephone company, and the public would soon have the penny telelogue, which he thought they would appreciate far more than his friend Mr. Williams's sixpenny telegram.

The PRESIDENT (James Caird, Esq., C.B., F.R.S.), in proposing a vote of thanks to Mr. Price Williams for his paper, remarked that after what had been said by Mr. Graves, he felt there was every competence in the Post Office to undertake the subject, and with Mr. Fawcett at the head of the service at the present time, they might with great confidence leave it in his hands, for as soon as that right honourable gentleman ascertained the financial possibility of reducing the cost of telegrams, they might expect it would be done. After what had been said by Mr. Batten, he thought they must all feel that an alliance between the telephone and the telegraph was highly desirable, and he was glad to see by the papers that Mr. Fawcett had already recognised that fact. In addition to the vote of thanks which he asked them to give Mr. Price Williams for his interesting paper, he thought the thanks of the meeting were due to both Mr. Graves and Mr. Batten for the instructive speeches which they had delivered.

Mr. PRICE WILLIAMS, in acknowledging the honour which the meeting had done him, wished to offer a few remarks in regard to the diagrams he had placed on the walls, illustrative of the rise and progress of commercial telegraphy in this country. The left hand portion of the diagram (Plate 1) showed the total annual number of messages forwarded by the Electric and International, British and Irish Magnetic, United Kingdom, and a few other small telegraph companies from 1855, up to the date of the acquirement of those undertakings by the Post Office in 1870; the remaining portion of the diagram showed, separately and combined, the number of Postal Telegraph messages forwarded from London, the provinces, Scotland, and Ireland, in each year from the date of the acquirement. It would be seen that the number of postal telegraph messages forwarded from London alone, now constituted fully one-third of the total number forwarded from all parts of the kingdom. He might mention, that whilst engaged on behalf of the railway companies in the matter of their claims against the Post Office, he had discovered some rather remarkable facts which the later and more detailed information furnished by the postal telegraph returns had since very strikingly verified. One of these facts was that the number of messages *forwarded* from any particular town or place, exactly balanced the number of *received* messages. Another fact he had discovered, by means of a careful analysis he had made of some returns furnished by the Electric Telegraph Company to the Midland Railway Company, was, that as a rule, one out of every three messages forwarded from the provinces was destined for London, or in other words, that the London messages (exclusive of the local) constituted just one-fourth of the entire number of that company's messages. From a reference to the diagram, it would be seen that the proportion of London messages under the postal telegraph *régime* had steadily increased, the proportion in 1871 being barely one-fourth, while, as already stated, the number of London messages now amounted to fully one-third of the whole postal telegraph messages forwarded from all parts of the kingdom.

The topmost outline in this diagram also showed the total number of letters sent through the Post Office in each year, and it was worthy of notice that the immediate effect of the large reduction in the Postal Telegraph tariff in 1870 was perceptibly to diminish the increase in the total number of letters sent through the Post Office in the following year; for instance, the rate of increase in the number of letters posted in the year 1869-70 (the year immediately preceding the acquirement) was 3·70 per cent., while in the year 1871-72 the increase was only 0·50 per cent., the lowest rate of increase ever reached since the introduction of the penny postage in 1840. There has since, however, been a steady recovery in the rate of increase in the number of postal letters, the rate in the year 1874-75, viz., 6·31 per cent., being the highest attained since 1854. The conclusion to be drawn from this was that although the immediate effect of the large reduction effected in the Postal Telegraph tariff had been temporarily to arrest the increase in postal letters, still the increased facilities afforded by the cheap messages had perceptibly operated in promoting increased activity in the letters sent through the Post Office.

The diagram (Plate 2) showed the Electric and International Telegraph Company's total gross receipts, working expenses, and net receipts, together with the mileage of telegraph line and number of messages in each consecutive year from 1851 to 1869, the year immediately preceding the acquirement of this undertaking by the Post Office. The details of this company's accounts for the year 1870 cannot be given, as the usual half-yearly accounts were not published for that year.

It will be observed that the red dotted line in the diagram, giving the average gross receipts per message in each year, shows an almost continuous decrease, and it will be found, as stated in the paper, that wherever any marked fall occurs in the average tariff rate, it is at once followed by a corresponding rise both in the number of the messages and in the amount of the receipts.

The remaining diagram (Plate 3) similarly shows the gross postal telegraph receipts, working expenses, net receipts, and number of messages for each year since the period of the acquirement of the telegraphs by the Post Office.

He was glad to see that since this paper was written, the postmaster general, in a speech he had recently addressed to his constituents, had stated that the question of the postal telegraph tariff had been considered by him, and he had promised that directly the exchequer was able to bear the deficit of 170,000*l.* anticipated to result at the outset as a consequence of this reduction, we were to have 6*d.* telegrams for messages of five words, including the address, together with a new tariff at the rate of ½*d.* for each word in excess of the five words allowed in the 6*d.* message.

In regard to the deficit of 170,000*l.* anticipated as the immediate result of the proposed reduction, he ventured to think that he had conclusively shown in the paper that no such deficit would occur even during the first year, inasmuch as the increased telegraphic activity resulting from the proposed large reduction in the tariff, would be such as to bring about so large an increase in the number of messages as would, even in that short time, make good the estimated deficiency in the Postal Telegraph revenue; and he ventured to think from what had just fallen from Mr. Batten, in regard to the future of the telephone, that the effect of its more general adoption could not fail very speedily to bring about a very large prospective increase in telegraph business generally.

He would, however, point out that although the 6*d.* messages promised by the postmaster general would undoubtedly be a very great boon, the effect of his contemplated tariff of ½*d.* per word for each additional word in excess of five words, would be actually to increase the cost of the present twenty-word message, inasmuch as the charge under the new tariff would amount to 1*s.* 1½*d.*, while for a message of twenty-five words the charge under the new tariff would be exactly the same as at present, viz., 1*s.* 3*d.*; there would, however, be a slight reduction of 2·86 per cent. in the present charge for a message of thirty words, a saving of 5 per cent. for messages of thirty-five words, and of 6·67 per cent. in the case of messages of forty words; whereas the saving that would result from the adoption of the tariff he had proposed in the paper would be in all cases considerably larger.

The METHOD *of* STATISTICAL ANALYSIS.

By WYNNARD HOOPER, B.A.

[Read before the Statistical Society, 18th January, 1881.]

THE theory of statistics has of late years been made the subject of much study on the continent, and a great deal of ability has been applied to solving the problems connected with this branch of scientific inquiry. I am not now referring to the practical statistical investigation of physical or sociological facts, but to speculations as to the nature of statistics, to the theory as opposed to the practice of statistical investigations. In this field the Germans have, as might be expected, taken a prominent position; but France and Italy have contributed their share to the literature of the subject. The latter country, indeed, has produced what is perhaps the best and most comprehensive work on statistics that has yet appeared, namely, Dr. Gabaglio's treatise. England, I regret to say, has been almost unrepresented in this field. The reason for her inactivity is perhaps traceable in the views expressed at the Dublin meeting of the British Association in 1878 by Professor Ingram in his opening address to Section F. Professor Ingram's able paper was chiefly directed against the so-called "orthodox" school of economists, and he urged the necessity for abandoning the attempt to treat economic questions apart from other aspects of the sociological problem. He went on to say at the close of the paper, in reference to the claim put in for statistics to be recognised as a science, "It is plain that "though statistics may be combined with sociology in the title of "Section F, the two cannot occupy a co-ordinate position. For it "is impossible to vindicate for statistics the character of a science; "they constitute only one of the aids or adminicula of science." Now this is the view generally held, I think, in England, and it seems to me to be the right one. But the writers of the continental school hold a different opinion. They maintain that there is a *science* of statistics, and several most able books have been written in France, Germany, and Italy, to maintain this view. They lay it down that statistics is both a method and a science: a method in so far as it is applied, or may be applied, to almost all sciences; and a science in so far as it deals with the phenomena of human society. I shall endeavour to show that the latter part of this thesis is indefensible, but that there *is* a science of statistics in one sense, though the field it covers is a very restricted one.

The conception of the continental school, though partially incorrect, has nevertheless been a fruitful one. To it we owe the valuable works I have just alluded to, in which we find a systematic treatment of the problems of statistical inquiry such as hitherto has not appeared in the English language. On the continent an over-estimate of the importance, and a mistake as to the functions of statistics, has led to a thorough investigation of the statistical method. On the other hand, in England, while we have avoided the mistakes of our foreign co-workers, we have done little either to aid in the work they have successfully performed, or to rectify their errors. Indeed it is hardly too much to say, that, outside this Society, little is known of the writings of the continental authors, and that the need for systematic investigation of the theory of the statistical method is hardly realised at all.

Even as regards the Society, I have observed, in looking over our *Journal*, that the work it has done has been chiefly in the domain of the concrete. The number of papers on the abstract side of statistics, of the study which the Society is especially concerned with, is very small. At intervals of years we now and again meet with a monograph on some point connected with the method of statistics. Among the ablest of these I may mention that read by Dr. W. A. Guy, in December, 1865, "On the Original and Acquired "Meaning of the Term 'Statistics,' &c." In this valuable contribution to the subject, Dr. Guy anticipates much of the speculations of the continental writers whose works have recently appeared. It is much to be regretted that a more exhaustive treatment of the question has not proceeded from the author of the above paper, whose knowledge of the method of scientific research and practical acquaintance with statistical investigation would have enabled him to perform the task with great success. Incursions into the realm of theory such as this of Dr. Guy are, however, rare. Indeed, it is remarkable that though in the practical business of conducting statistical investigations, and in the application of the results of those investigations to the solution of the problems presented by politics and other branches of practical social science, Englishmen are at least as advanced as foreigners, in almost all that concerns the theory of the subject, they are, comparatively speaking, "nowhere." I know of no work in English in any way similar to those of Dr. Georg Mayr, M. Maurice Block, or Dr. Antonio Gabaglio, to name the three best authorities on the subject; and there are several other writers, such as Dr. Ernst Engel, and M. Haushofer, of whom also it may be said that they certainly try to do what has not as yet been attempted in England, namely, to attain to a scientific conception of the scope of statistics.

The three writers whom I have named are all agreed on the main points of the inquiry. They all distinguish between the method and the science of statistics. The Method, according to these theorists, is a mode of scientific procedure based on the observation of aggregates of individual phenomena. It is applicable to the phenomena of all sciences; but there is one set of phenomena to which it is especially applicable, namely, those of society. The employment of statistics in sociological investigations gives rise in their view to the Statistical Science. Accordingly we find in the works of these three writers (Mayr, Block, and Gabaglio) a constant reference to the twofold sense in which the term *statistics* is to be understood. I may here remark on the advantages of German, French, and Italian writers in not having to employ such a clumsy plural form as the word in use among us to designate this very important branch of knowledge. They are fortunate in having adopted the singular form (German, *statistik;* French, *statistique;* Italian, *statistica*).

Mayr and Gabaglio employ the same metaphor in describing the distinction. They both speak of "statistics in the wide "sense," *i.e.*, the method, and "statistics in the narrow sense," *i.e.*, the science. The other two German authors whom I have mentioned use similar language. I am only acquainted with them at second hand through the medium of the *apparatus criticus* supplied by Dr. Gabaglio in his work on statistics. In order to make good my assertion respecting the substantial agreement of the leading continental writers on this point, I shall quote passages, when possible at first hand, from the works of Mayr, Engel, Haushofer, Block, and Gabaglio; after which I shall offer some remarks on the views they express, and shall endeavour to show that there are grounds for modifying them in some particulars, and that there is room, if I may so speak, for an Anglo-German, as well as a German-Italian school of statistical theory.

The first of the three leading continental writers who have entered profoundly into the subject of statistics is Dr. Georg Mayr, late director of the Bavarian Statistical Bureau, and now occupying a high administrative position in the provinces of Elsass and Lothringen. His work, of which a copy is in our library, is called "Die Gesetzmässigkeit im Gesellschaftsleben," which may be translated, "Conformity to Law in Social Life." Mayr's conception of the nature of "Die Statistik" is set forth in the following passage (pp. 13 and 14):—"While the statistical or numerical method "holds sway, wherever there occurs a quantitative determination and "co-ordination of facts, based on observation of aggregates, the field "of the science of statistics is restricted to the quantitative investi- "gation of the social life of man, which is only attainable by means "of the observation of aggregates. Accordingly, I define the sta-

" tistical science as the systematic statement and explanation of " actual facts, and of the laws of man's social life that may be " deduced from these on the basis of the quantitative observation " of aggregates." Mayr having thus claimed for *Die Statistik* the right to be considered an independent science, proceeds to justify that claim. He admits that " it may surprise us that the quanti- " tative observation of social aggregates should constitute an inde- " pendent department of knowledge, while the same claim is not " recognised in the case of the observation of purely physical aggre- " gates." Why, it may be asked, should we in one group of aggregate observations speak of an independent science, in another merely of a method? Dr. Mayr then proceeds to give reasons for his own view, which are, to my mind, very inconclusive. These reasons are briefly that the physical sciences only occasionally make use of " aggregate observation," while the social sciences can make use of no other method of inquiry. I shall have something to say on this point later.

The next writer whose views I propose to examine is M. Maurice Block, whose " Traité Théorique et Pratique de Statistique " is probably known to members of this Society. M. Block's work is divided into four parts, dealing respectively with the History of Statistics, the Theory of Statistics, the Practice of Statistics, and the Results of Statistics as applied to Sociology (Partie appliquée, ou Démographie). With regard to the last, it must be remembered that M. Block considers " Applied Statistics " as " Statistics " *par excellence*, and that, consequently, he does not mention Sociology in connection with it, the connection being understood, being, in fact, a part of his definition of statistics. The following passage, taken from the commencement of the " Partie Théorique " (" Traité," pp. 85 and 86), expresses his views on the nature of statistics. " *La Statistique** may be regarded as a science, and as " a method: as a science, it aims at expounding the political, " economical, and social condition of a nation, or, generally, of a " group of population; from this point of view, then, the name " ' Demography ' has been assigned to it. In order that this " exposition may possess a scientific value, it should be the result " of direct observations, and the facts must have been collected " with care, and, above all, with precision; they must have been " counted, weighed, and measured. This precision is manifested in " the employment of figures, of ' numerical terms.' "

" *La Statistique*, then, has its modes of procedure; it has a special " method of observation, which consists: 1. In the employment " of numbers; 2. In grouping them with the object of extricating

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* I have thought it better to avoid the use of the term " statistics " where it might be ambiguous.

" the facts which are (relatively) permanent, that is to say, of " abstracting them from facts which are accidental; 3. In the " comparison of permanent facts and of accidental facts, in different " places and in different circumstances; and evidently, also, 4. In " the employment of the *data* collected and mathematically " elaborated for the purpose of more or less direct inductions and " deductions.

" This method, which is peculiar to *La Statistique*, is able to " render to other sciences services too great for them to neglect. " They are often obliged to observe with the logic and rigour of " *La Statistique*—at least, with the rigour which *La Statistique* " ought always to have, which it already has in several of its " branches, and which it will one day have, we may hope, in all. " That is why we say that *La Statistique* is also a method. . . . " . . . It is not difficult, it seems to us, to distinguish the " statistical science from the method which bears its name. When, " in a demographical investigation (dans une démographie), we " make known the causes of the deaths, *La Statistique* performs its " functions as the science of population, and not as medical statistics " (statistique médicale); when a doctor determines the effects of " typhoid fever on men and women at various ages, when he compares the number of cures or failures obtained under such and " such a treatment in a definite number of cases, he applies the procedures of *La Statistique* to medical science; he employs *La* " *Statistique* as a method."

This statement of the matter is sufficiently explicit, and, as I shall presently show, it is substantially the same as that of Gabaglio; the agreement with Mayr is obvious.

The next author is Dr. Antonio Gabaglio, whose "Storia e " Teoria Generale della Statistica" is the latest work published on the subject, having appeared last spring. In several respects it is superior to those of Dr. Mayr and M. Block. Dr. Gabaglio is one of the professors in the University of Pavia, and a copy of his book is in the library of the Society. Dr. Gabaglio distinguishes between the *Science* and the *Method* of statistics, and the definition he gives of the science is very similar to that of Mayr as well as to that of another writer, Haushofer, whose work I have not read, but who seems, to judge from the passages quoted by Gabaglio, to have a very sound conception of the so-called science, and of its relation to the method. One most valuable feature of Dr. Gabaglio's book is the careful collation of the opinions of the chief statistical writers on the nature of their subject. Before giving Gabaglio's own views, I shall quote from it those passages which set forth the views of Haushofer, and also of Engel, the chief of the Prussian Statistical Office.

To take Engel first. Gabaglio's statement of his views is as follows :—*

" Engel sees in Statistik a Method and a Science. As a Method " it is Systematic Observation by means of Masses of Facts, and, " as such, it offers itself for the service of the natural sciences as " well. The use of this method consists in mechanical operations " such as the observation of facts, the recording, classification, and " grouping of these observations; and in operations of criticism, " such as the Interpretation of the observations, their comparison " with reference to time and space, and the search for causes and " laws of the phenomena. As a science, Statistik observes the " life of peoples and States in their various aspects and manifesta- " tions; it studies these arithmetically and demonstrates by analysis " their causal relation. In restricting Statistik considered as a " *Science* to the relations of human life, he does not mean that it " ought to neglect the physical element, the study of which he con- " siders necessary to the exposition of the physiology of population. " Neither does he exclude from Statistik the description of the " condition of human society; nor, further, does he confine *Statistik* " to a given moment of time, ' It ought,' he says, ' to consider social " ' conditions in their progressive periodic development.' He makes " use of numbers, but admits that ' very few moral relations have " ' as yet been made capable of numerical treatment and translated " ' into figures.' He holds that each phenomenon ought to be known " in itself and in its various parts, and, further, that we ought to " search for the connection in which each of them is found with the " rest; finally, that we ought to *measure* this connection of de- " pendence."

From this brief account of Engel's view of statistics, it will be seen that his point of view is the same as that of Mayr.

Of Haushofer Dr. Gabaglio speaks as follows (p. 177) :— " Haushofer distinguishes in *Statistik* between the method and the " science. As a method it investigates conditions and events by " means of mass-observation (Massenbeobachtung). It is thus " applied to all phenomena, human and physical, which reveal them- " selves as produced by constant and variable causes simultaneously. " . . . . The phenomena observed must be reduced to quantity, " and therefore expressed in numbers, for which, when not avail- " able, it is often possible to substitute approximate expressions of " quantity. The original numbers must further be reduced by " reference to a single unit . . . . . and displayed in well " constructed tables. . . . . . The relation between one " phenomenon considered as an effect and one or more other " phenomena considered as its causes are called the *laws* of this

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* Gabaglio, p. 144.

" phenomenon. These laws depict the uniformity with which the " effects are products of the causes. Consequently statistical law " is the shortest expression for the constant relation of dependence " between effects and causes While the 'natural' laws hold in " single cases, statistical laws only hold in the case of large " numbers, which show a certain regularity which is hidden when " the numbers are small. The law of large numbers has its origin " in the diversity of the causes which produce the phenomena it " governs. These causes are more or less variable. Statistik then " must reveal the constant cause by reducing it to law, and little by " little rendering the variable causes constant. By 'cause' is not " meant here the final or original cause, but the proximate cause. " [It is not quite clear what is meant by 'rendering the variable " cause constant' (rendere costanti le cause mutabili), but the ' general drift of the passage is obvious enough.]

" As a science, *Statistik* is the Science of Aggregate, especially " of the aggregate of human phenomena and of the State, of its " movement and its laws. It has unity of method, and also a " certain unity of subject matter—namely, the phenomena of " human beings in society, and of the State. *Statistik* is an " auxiliary science, in so far as it seeks to observe truths which " may be the starting point of other sciences. The *Statistik* of " Conring and Achenwall, and the *Statistique* of Quételet, can " be considered neither as parts of some higher science, nor as two " branches of science independent of one another; nor, again, the " one as an independent science, and the other as a method. They " may be considered as the two opposite currents of one single " science, the first with an independent existence not as a science, " but as an organised system of useful knowledge such as Statistik, " Politic, Political Economy, Political Geography, Ethnography, " History, Public Law, &c."

Assuming that the above *résumé* of the views of Haushofer accurately pourtrays them, it would appear that the conception of the theory of Statistics adopted by this writer differs somewhat from that of Engel and Mayr, and, as will presently be shown, from that of Gabaglio. The point to which I would call attention is the statement granting to Statistik the claim to be an "auxiliary science" only, a science which "seeks to observe truths which may be the " starting point of other sciences." This view appears to me to be sounder than those of the other writers, but is not fully in harmony with that which I should wish to see generally adopted. It remains to close this examination of authorities by giving the doctrines of Gabaglio. He commences by discussing the various more or less sound definitions given by others, and criticises them, specifying their particular defects, under the heads of vagueness, undue length, and want of clearness as regards either the science or the method. He then proceeds as follows (p. 239):—"*La Statistica* may be "interpreted in an extended and in a restricted sense. In the "former sense it is a Method, in the latter a Science. As a Science "it studies the actual social-political order by means of mathe"matical induction." This is Gabaglio's definition, and it is perhaps the best of those which regard Statistics as, in one sense, a science. He explains carefully what he means by the words he has chosen, the most noteworthy point in this explanation being his remarks on the term which I have translated "actual," "*di fatto*." He says: "I mean by *di fatto* that *Statistica* studies the social-political order "not as it ought to be, but as it really manifests itself; that it does "not seek for the primary, absolute, unchangeable causes and laws "of social and political phenomena, but only the empirical and "variable causes derived from them." From this it is clear that Gabaglio has a very clear perception of the limits of statistical inquiry, and that he is well aware of the great need for caution in drawing wide deductions from the results of the method as applied to sociology.

These then are the views and doctrines of the best continental writers on Statistics. They may be summed up thus:—

"Statistics" is a term that is to be interpreted in two senses. It is a method of scientific inquiry (and as such applicable to *all* sciences), and it is also a science dealing with the social life of man. Considered as a science it is a branch of Sociology, which can only be studied by means of the Statistical Method.

Here then we have a claim made that the special department of knowledge which may be termed sociological statistics should be regarded as an independent science, on the ground that there is only one instrument that is applicable to the various phenomena included in it. The claim is endorsed by the three writers who may be regarded as the chief leaders of speculation in this field in Germany, Italy, and France. At the risk of repeating a portion of what I have already said, I shall once more refer to Mayr's views, which I have already described in their general scope. Mayr wishes to distinguish what he conceives to be the *Science* of Statistics, from the *Method*, by departing from the accepted nomenclature. He says,* "It does not at all contribute to the clearness "of our insight into the nature of Statistics, that Statistics and the "Statistical Method should be spoken of in so vague a way. Hence "it has with reason been proposed to speak in such cases as the "above, not of the statistical, but of the numerical method." The cases to which Dr. Mayr alludes are the various applications of the method to the physical sciences. He explicitly objects to these being included under the head of examples of the statistical method. "The observation of purely physical facts, which "have no connection with the social life of men, is excluded from "the field of the independent science of statistics." And further, he defines this independent statistical science as "the systematic "statement and explanation of actual events, and of the laws of "man's social life that may be deduced from these, on the basis of "the Quantitative Observation of Aggregates."* This definition, when carefully looked into, agrees substantially with the far more concise statement of M. Maurice Block. This able writer has a great advantage over Dr. Mayr, in having French and not German for his native tongue. The former language is admirably, the latter indifferently, well adapted to the expression of intellectual conceptions. M. Block adopts for the independent science of statistics the term Demography, and Demography is "la science de l'homme "vivant en société, en tant qu'elle peut être exprimée par les "chiffres." "The science of man in the social state in so far as it "can be expressed by figures."†

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* Mayr, "Die Gesetzmässigkeit," &c., p. 13.

These statements of Mayr and Block are explicit enough, and show clearly what is the view accepted by them in regard to the nature of statistics. The conception of Gabaglio is equally well defined, and is open to the same objections as that of the other two authorities. In his chapter on "The Limits of *Statistica*" ("Storia," &c., pp. 246-47), he says:—

"Statistica being at once a social and a political science, has a "natural affinity, and a community of object with all the other "social and political sciences. This does not imply that it can, or "ought to be confounded with one or other of them, by being made "to overpass its own special limits. It differs from these two "groups of sciences [the one group includes 'Social Physiology,' "'Economics,' and 'Social Psychology;' the other 'Constitutional "'Science,' and 'Administration'];"

(1) In being of a twofold nature, having for its subject both *Society* and the *State*.

(2) By the extent of its field, in that it is not occupied merely with this or that social or political fact, but with *all* social and political facts at once.

(3) By the unity and the special character of its function, "it "being restricted, as has been already said, to the research after the "*actual* causes and laws of social and political phenomena, con- "sidered statically and dynamically." Gabaglio goes on to say, "it does not indicate the original, immutable, absolute, causes and "laws of these facts, but those causes and laws which are purely "empirical and external. The *causes* involve a certain actual

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* Mayr, "Die Gesetzmässigkeit," &c., p. 14.

† Block, "Traité," &c., p. 398.

" dependence, and nothing more; the laws express actual uniformi-" ties or regularities of a simple kind. These causes and laws are, " in short, derivative, or secondary laws, which are, moreover, " variable (yet with a kind of regularity), and of a constancy which " is purely relative and limited." He then proceeds to instance one of these "statistical laws," namely the "law" of the proportion of the births and deaths of the two sexes, and says that these "are " not 'laws' in the rigorous sense of the word, but in the special " statistical signification."

The three leading authorities on Statistics, then, agree in asserting that though the Statistical Method is employed in the physical sciences as well as in Sociological investigations, the most important field for its employment constitutes a Statistical Science in itself. They therefore claim for "Statistics," or, as M. Block calls it, Demography, an independent position as a science, in virtue of the fact that the phenomena it deals with can only be investigated by means of the Statistical Method; whereas, in other sciences the latter only plays a subordinate part. With all deference to these three eminent authorities, I cannot admit that this claim is admissible.

The matter, if looked at without any preconceived notions of what is called "vindicating the dignity" of Statistics, is a simple one. Of what kind are the phenomena which "Statistics," or Demography, investigate? They are social phenomena, and on the face of it, social phenomena constitute the subject matter of Sociology. There is no philosophical reason why Statistics should be considered as a method when applied to physics, and as a science when applied to Sociology. Those social phenomena which we are able to investigate statistically are of a very heterogeneous character. Their investigation has not been undertaken with a view to the obtaining of an organised body of truth, but is the consequence of a great number of desultory inquiries commenced for particular political purposes, and very often subsequently abandoned. Even when they have not been abandoned, the form of the inquiry has frequently had to be changed in consequence of want of thought in the arrangements made at the beginning, thus rendering the later noncomparable with the earlier results. At the present day, indeed, it is possible in the cases of one or two civilised communities to present a fairly adequate view of many of the more important, or at least the most conspicuous, social phenomena. But the collection and arrangement of the facts has been made from all manner of motives. Some of our statistics have been procured from reasons of fiscal policy, some for police purposes, some for legislative purposes some to satisfy the caprices of would-be legislators. Some again have arisen, as it were, unbidden, out of the ordinary administrative reports of large public departments. There is no bond of union common to them, except that they are sociological facts, and are obtained by the statistical method. But again, to erect the study of the fortuitous concourse of social facts obtained by the statistical method, into a separate science, is erroneous on another ground. Sociology is already naturally divided into several sub-sciences, dealing with special classes of social phenomena, the best organised and best understood of which sub-sciences is Economics. Now the statistical method is employed in all of these, and to make the fact of its employment the differentia of a special science, is to introduce an exceedingly inconvenient and confusing cross-division.

At present, owing to the limited extent of our statistical information regarding even the most highly civilised countries, those who study statistics at all, can without very much difficulty make themselves acquainted with all the more important facts regarding a country which can be rendered perceptible by statistics. But since our means of observation increase as the amount of statistical information grows in bulk, it will before long become wholly impossible for any one man to deal with all branches of sociology at once, and sociologists will become divided into various more or less well-defined groups, the members of each of which will confine their attention to special sections of the science. This is what has occurred in each of the other sciences as they have slowly increased in extent, and the fact that it is still possible for those who study sociology on the statistical method to be, so to speak, encyclopædists as regards it, is tolerably good evidence that sociology is still in a very rudimentary state. The mental work of the world, as well as its physical work, is now carried on to a greater and greater extent in accordance with the principle of division of labour, and the vast magnitude and bewildering complexity of the phenomena presented by the social organism make it peculiarly necessary that they should be as much as possible subdivided for the purposes of science. This subdivision is in fact essential to the adequate treatment of the phenomena of society. I do not mean that a proper conception of the nature and working of such a community as the England of the present day can be obtained by studying separately the phenomena of the growth of population, of the growth of means of communication, of economics, or any other of the conceivable branches into which it might be convenient to divide the great mass of interlaced and interacting phenomena which we denominate the English community. It is one of the peculiar difficulties of sociology that the investigation of each set of facts must proceed simultaneously with that of all the rest if any real result is to be arrived at. To use the hackneyed illustration from physiology, it is no use assuming that the action of the heart can be considered independently of that of the lungs or the digestive apparatus. We must contrive to trace the consequences of the reciprocal action of all on each, and obtain a conception of the result of their joint action as a whole.

Nevertheless there is one preliminary step which must be taken before we can begin our study of the actions and reactions of the various organs of a living animal or of a community among themselves. We must see what the phenomena are. We must begin by seeing that the heart beats; that the way in which it beats varies at different times, and generally we must become thoroughly acquainted with what for the sake of brevity we may call its "action," before we endeavour to ascertain how that action is caused, how it is affected by the influence of the other organs, and how again it affects the action of these latter. Now, in the case of the heart, all these operations are comparatively easy. We can see, handle, and weigh the heart, we can count its pulsations, and generally observe a good deal of what we require to know by judiciously contrived experiments; and the same is true of the other organs of animals; but when we come to the organs of a community—of a highly organised community I mean—the case is very different. In the first place the mere magnitude of the phenomena, their mere extension in space, is a serious obstacle to our appreciating their action properly, even when the particular phenomenon observed is itself localised: and by far the most important phenomena of society are *not* localised. One of the peculiarities of the social organism, in which it differs fundamentally from animal organisms, is the fact that the component parts of its organs are not always in juxtaposition; that the "body politic," as it is often called, has organs which could not under any conceivable condition of things be perceived by the eye. There are, for instance, scattered over England in small groups a number of individuals engaged in what is called the "corn trade," people on whose action depends to a large extent the question whether at a given time corn shall or shall not be imported. The action of these groups to a large extent regulates the supply of corn to the community at large. How their action is determined does not for the moment concern us. The noteworthy point is that the action of the machinery by which this important function is performed is to a large extent imperceptible to an observer unaided by figures. Take any great market, or rather any great "trading body," to employ the useful phrase of Professor Jevons, and consider how little we can know of its functions in the social organism unless we have some quantitative conception of its magnitude and of the effects it produces. Another cause of the difficulties of sociologists is the fact that every individual in a community is a component of many different "organs" at once, and that the components of the organs are in many cases interchangeable. Mere inspection of the social organism, even such inspection as we might imagine a being of superhuman faculties to make, would reveal almost none of the marvellous phenomena presented by commerce, to say nothing of other less conspicuous matters. Conceive for a moment, as a mere fantastic effort of the imagination, of a being endowed with superhuman faculties of the same order as our own, suppose him supplied with the five senses, but with those senses greatly exceeding ours in efficiency and range of observation, and then suppose him to set himself to investigate the proceedings of man, as we investigate the proceedings of ants in and about an ant-hill. The first thing he would probably notice would be the streams of ships that are continually flowing in and out of London, Liverpool, and other large ports. He would, no doubt, perceive that these streams were larger at some times than at others, and that they diverged in several directions from the port; but it would be impossible for him to discover that the whole movement was the resultant of a great number of single forces, that the ships, in short, were owned by and moved by the wills of a great number of individuals. His inspection of the intricate network of railways and canals would probably lead him to the conclusion that the individuals composing the English people rushed hither and thither in the interior of their tract of land with as great an apparent absence of aim as ants when disturbed in their dwelling. To him all, or nearly all, would appear confusion, simply because many portions of the social organism which really act in the closest concert, which are in actual fact the components of a single force, are widely separated in space from one another.

What I have been saying goes to show that our knowledge of the organic arrangements of a community is at present very imperfect. This is another way of asserting that Sociology, or that branch of it which we may call Social Physiology, is in its infancy. The very conception of society as an organism is present to the minds of only a few. It could not be otherwise, seeing that the instrument of research which will eventually enable Social Physiology to become a well-established branch of human knowledge has only come into existence very recently. The Statistical Method is barely fifty years old, and the materials for its application are neither sufficiently extensive, nor, in many cases, of the right kind. Those who employ the method had for many years to take what they could get, and be thankful they got anything at all. Matters are improving now, I admit, but we are a very long way from an ideal state of things. The choice regarding the social facts which shall be observed statistically is partly dictated by the necessities of government, which are by no means identical with the necessities of sociological inquiry, and partly by the needs, and often the whims of politicians, which also are not exactly inspired by a love for the interests of science. Lastly, everybody who tries to obtain statistics has to fight against the unconquerable aversion of men to answer questions about what they, not unnaturally, regard as their private affairs. This is an obstacle to the advancement of those parts of Sociology which depend on statistics for their subject matter, that will, we may hope, be eventually remedied by the spread of education.

I shall now give as briefly as possible what I regard as the correct view of the nature of Statistics. It differs from that of the continental theorists in this: While I agree with them that the Statistical Method is the only method available in some portions of sociology, I fail to see that there is anything gained by grouping together the various branches of sociology which deal with them and terming them the "Science of Statistics." Call this branch of knowledge Demography, or, with Dr. Cossa, Demology, if you will; the name is as good as any other, but I do not see that anything is gained by doing so. M. Block's definition, already alluded to, admirably describes Demography as the science of human society in so far as it can be dealt with by figures. Let us keep the term "statistical" to its strict signification, namely, "of or belonging to "statistics;" statistics having in this country, at any rate, a well understood concrete signification. We all know what we mean by "statistics of pig iron," "statistics of coffee," "population statistics," or "revenue statistics." We mean actual concrete figures relating to a particular set of phenomena. Even that very objectionable phrase the "statistical position" of a commodity is comprehensible enough, and is in harmony with this use of the word "statistics." It would appear then, that before we can define the meaning of "Statistical Method," it is necessary to assign to the term "statistics" a definite meaning, and, in my opinion, it is not only desirable but necessary that the definition decided on should be in accord with the language of business men. I would therefore suggest the following definitions:—

I. A "Primary Statistical Quantity is a number obtained from "numbers representing phenomena, with a view to enable an "observer to perceive certain other phenomena related to the "former as whole to parts." [*Example:* the amount of the stock of pig-iron in Messrs. Connal's stores in Glasgow at any date; the receipts of the London and North Western Railway during any week; the number of deaths in the western district of London during any week; the rainfall at Greenwich during any day.]

II. The term "Statistics" always means statistics *of something*, and statistics consist of an orderly collection of primary statistical quantities. [*Example:* the "statistics of coffee" means a statement, arranged in a systematic form, of the "stocks, landings, and "deliveries" of coffee in London (or some other place), extending over a length of time, varying according to the requirements of the investigation.]

III. The "Statistical Method" is a scientific procedure involving the employment of "Statistics." It includes not only the processes by which the statistics are dealt with, *e.g.*, the noting of the differences between the statistics of coffee of any one week and those of the corresponding week in the previous year, but also the superintendence of the processes by which the primary statistical quantities are obtained. With regard to these primary quantities, it may be necessary to observe that they are "primary" in the sense of being the units, so to speak, of statistical investigation. To those who have to compile them they are not, of course, "primary."

From what I have said, it will be clear that I regard what is commonly called "Statistics," and which in future I shall call "Statistical Analysis," as a method of Scientific Inquiry, a certain Instrument of Scientific Investigation, whether it be applied to sociology, to meteorology, or to any other science. In saying that it is an "Instrument," I mean that its purpose is to enable us to perceive and measure with more or less accuracy phenomena which we could neither perceive nor measure otherwise. In the service which it renders to the man of science it is, therefore, analogous to the microscope, which enables us to perceive magnitudes, and the spectroscope, which enables us to perceive tints, that are not otherwise perceptible to us. The latter analogy is, I think, the closest; but two independent writers have both made use of the former. The one is Mr. J. J. Fox, a late member of the Society, who in a Paper read before Section F of the British Association, July, 1860, and published in the *Journal* of the Society for September, 1860, "On the Province of the Statistician," wrote as follows:—"Let us "consider now the second part of our title, 'Statistics.' This "stands in an entirely different position from Economic Science. "It can hardly be said to be a 'science' at all. Economic Science can "deduce general laws from the facts of man's social and political "life. Statistics has no facts of its own; in so far as it is a science "it belongs to the domain of Mathematics. Its great and in-"estimable value is, that it is a 'method' for the prosecution of other "sciences. . . . In making a 'method' or instrument a common "bond of union between scientific men, we are not singular. The "microscope is an instrument for the investigation of science, and "is applied to a large circle of objects. It is applied to the sciences "of Zoology and Human Anatomy, Physiology and Pathology, to "the science of Vegetable Anatomy, to Crystallography, and the

" structure of Geologic rocks. It seems an anomaly to form a " Society for the study of things that are small, and yet in practice " this bond of union is convenient. The Microscopical Society " flourishes, not for the sake of the science of the Microscope, which " is a department of Optics, but for the investigation of the several " matters to which the microscope is applied." Mr. Fox went on to remark that in like manner the Statistical Method is the common bond of Statistical Societies, and adds many most valuable observations on the nature of the method itself, which I forbear to quote, much as I should like to do so.

The other writer, who compares statistical analysis to microscopy, is Dr. Hübbe-Schleiden of Hamburg, who is the author of a work published last year, entitled " Uberseeische Politik." He uses statistical analysis with considerable skill for his special purpose, namely, an examination of the probable future of German colonial enterprise. The passage regarding the theory of the statistical method occurs in a note, and is as follows: " *Statistik* is to the " sciences of civilised society, what the microscope and the dissecting " knife are to the physical sciences, an instrument of inductive " inquiry, or rather the only instrument which can help us to determine the facts, and thus obtain the only sound premises for logical " conclusions. Just as at the present day only comparatively few " men can make proper use of the microscope and dissecting knife, " so also unskilful people commit follies, or even do more mischief, " with their statistical investigations." He adds, " I always use " the word 'Statistik' in the sense of 'statistical method,' and " never in that of Demography."*

There is, then, according to my view, no " Science of Statistics," at least in the sense in which the term is used by the continental writers. There is a Method of Statistical Analysis, which is applicable to, and valuable as an aid in, several physical sciences, but is absolutely essential to Sociology. The reason why it is essential to Sociology is plain, namely, that the unit of sociological investigation is an aggregate, and in many cases an aggregate of a peculiar kind, namely, an aggregate whose existence is not perceptible to the senses, and which can only be placed before the mind in the form of a primary statistical quantity, and can only be investigated by the aid of Statistical Analysis. The process of giving it the form of a statistical quantity is a mathematical one.

Though the employment of Statistics is merely the employment of an instrument, and though there is no one set of phenomena which can be set apart as the field of a " Science of Statistics," nevertheless, there is a certain limited sense in which we are at liberty to speak of " Statistical Science." In so doing we shall be acting in harmony with established precedents set in other departments of human knowledge, for instance, in the department presided over by Spectrum Analysis, as well as that referred to by Mr. Fox and Dr. Hübbe-Schleiden, Microscopy. It is found convenient to speak of the science of Spectrum Analysis and of Microscopical Science, on the following grounds :—All complicated scientific instruments require that those who use them should understand them thoroughly, and should be able to adjust them should they get out of order. Now the knowledge which enables the operator to use his instrument effectively, and to restore its efficiency when it is not in working order, is important enough to be termed "scientific." The claim of any body of knowledge to be considered a science is usually estimated less by the extent of the field of the art to which it is subservient, than by the importance of the end to be gained. Even an oarsman may in a sense be termed "scientific," though this use of the word savours too much of sporting slang. Nevertheless, any man who has done much rowing is aware that his art is based on knowledge to some extent. "Art," says John Stuart Mill,* "necessarily presupposes knowledge; art, " in any but its infant state, presupposes scientific knowledge; and " if every art does not bear the name of the science on which it " rests, it is only because several sciences are often necessary to " form the groundwork of a single art. Such is the complication " of human affairs, that to enable one thing to be *done*, it is often " requisite to *know* the nature and properties of many things." Now the knowledge suitable to the purpose of practising the art of Spectrum Analysis is of a very complicated kind. It necessitates a study both of the instrument itself, the spectroscope, and of the special phenomena revealed by the instrument. Such knowledge is with entire propriety termed scientific. And the same may be said of the knowledge needed for successfully practising the art of statistical analysis.

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* " Uberseeische Politik," von Hübbe-Schleiden, D.J.U., p. 13.

It may be said that in the case of Statistical Analysis the instrument employed is easily handled, and that it cannot correctly be said to require scientific knowledge in those who use it. I am not myself of this opinion, and I should think it strange if such an idea found acceptance within these walls. It is true that much good statistical work has been done by men who have made no study of the method by which they were working. But this only shows that able men may do much while their knowledge is imperfect. Referring to the supposed uselessness of the study of logic, Mill says,† "Men judged of evidence, and often very correctly, before " logic was a science, or they never could have made it one. And

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* "System of Logic," Introduction, Sec. 2.

† "*Ibid.*, Sec. 6.

"they executed great mechanical works before they understood "the laws of mechanics. But there are limits both to what "mechanicians can do without principles of mechanics, and to what "thinkers can do without principles of logic." To this I would add, that there are also limits to what statistical inquirers can do without studying the principles of statistical analysis, an assertion in which I have no doubt members of this Society will concur.

DISCUSSION *on* MR. HOOPER'S PAPER.

MR. WALFORD very much concurred with the conclusion which the author of the paper had arrived at, that statistics did not represent any aspect of science except in the sense of being an instrument for scientific use. No physical inquiry could be conducted skilfully and effectively without the aid of statistics. The telescope, which was so essential to the astronomer and his work, did not embody science in itself, although it might have science in its construction and application. And statistics were to be regarded as an instrument or method (and nothing more) which could be applied in the investigation of other sciences. The reader of the paper stated that statistics had only been in use for half a century. He (the speaker) ventured to say he differed from Mr. Hooper in that respect, for all the writers on political arithmetic of the last two or three centuries, had adopted statistical methods in their investigations, manifesting frequently very great skill in their methods. Such inquiries, indeed, could not be conducted without the aid of statistics for the purpose of comparing one result with another, or the comparative progress or retrocession of one period with another. In all inquiries concerning the progress of population, no other method was available. Numbers and quantities depended in the aptness of their use upon statistical method, and many of the great social problems of the age admitted of no other rational treatment. In conclusion, the speaker remarked that, although he had paid great attention to the paper, and had had the opportunity of discussing the question in days gone by with some of the leading authorities of the age, such as M. Quételet and M. Maurice Block, who had ambitions views regarding statistical science, he had always failed to see that there was really a science in statistics. If there was any science about them at all, as he had already said, it was in their use, in the application of statistical methods to the elucidation of simple facts from complex phenomena without unduly forcing conclusions, or attempting to draw deductions from them which they did not fairly warrant.

Mr. R. Giffen had listened to the paper with much pleasure, and he thought it was very valuable to the Society to have a man like Mr. Hooper, who was so well acquainted with continental languages and statistical science, taking so much trouble to acquire and digest a large amount of information for their instruction. With regard to the subject of the paper itself, he must say that he entirely concurred with what Mr. Hooper had said, and Mr. Walford had just enforced. He (Mr. Hooper) had absolutely demonstrated his point, that there was not a science of statistics in the sense of an orderly arrangement of knowledge relating to a single subject, which was usually the definition, or very near it, of what they called a science. At the same time there was a great mass of scientific fact which they got to be acquainted with by the study of statistics, and most people who could devote themselves to the study in that way acquired a great deal of knowledge about different sciences through this instrument of statistics which was really scientific knowledge, and justified the association of statisticians together. He thought it was sometimes to be regretted that statisticians seemed to confine themselves exclusively to one science. If they found some people acquainted with the statistics of trade, they generally found the same people unacquainted with the facts relating to population, and so on with other things, which was greatly to be regretted. One use of the work of a society like this ought to be to stimulate the general knowledge of statistical facts apart from one particular branch of the study. One service which they could render was to bring together all the statistical data about different studies, and popularise and diffuse the information regarding them. There was one difficulty incidental to this discussion which he had observed, and that was, that people when they discussed this question seemed to think that because they demonstrated that there was not a science called statistics, therefore they demonstrated that what statisticians did was not scientific. But this was a misunderstanding, for which there was not the smallest foundation. What they did was to collect and investigate data to aid in the investigation of many sciences, and that was accordingly scientific, although there was not a specific science like astronomy to be called by the name of statistics.

Land Tenure *and the* Distribution *of the* Population *in* Russia.

By A. V. [A. Vesselovsky]. (*Translated from the* "*Journal* "*de St. Pétersbourg*" *of* $\frac{\text{14th,}}{\text{26th,}}$ $\frac{\text{19th}}{\text{31st}}$ *August, and* $\frac{\text{21st Aug.,}}{\text{2nd Sept.,}}$ 1880.)

An enquiry has recently been instituted by the Ministry of the Interior into the question of landed property in Russia, all attempts to obtain complete and detailed statistical returns on this subject having hitherto been unsuccessful. Two reasons have combined to induce the ministry to undertake this task—the necessity of obtaining reliable information as to inhabited localities, and of preparing a definite basis for taking the general census of the population, a scheme which has been in contemplation for some considerable time. It would be superfluous to insist upon the very great importance of this undertaking, and we will therefore merely confine ourselves to a notice of the methods employed in the collection of the statistics, before proceeding to an analysis of the results, which have just been submitted to the public.

The credit of initiating the work is due to His Excellency M. de Séménow, and it has been carried out in accordance with a circular addressed by the Ministry of the Interior to the governors of the different provinces, dated 4th May, 1877. A double schedule was prepared, divided into two series of enquiries, one having reference to places and property under the jurisdiction of rural communes, which was intended for the communal authorities; the other referred to inhabited localities and property beyond the jurisdiction of the communes, which was for the proprietors themselves to fill up. The forms were then revised and classified by the provincial statistical committees, who drew up recapitulary tables, arranged by districts, and then returned them to the Central Statistical Committee of the Ministry of the Interior, to be finally revised and put in circulation. On the 20th March, 1880, the required information was received at St. Petersburgh for 428 districts and the kingdom of Poland—that is to say, nine-tenths of the whole of the ground over which the enquiry spread, and complete statistical returns were then compiled for 337 of these districts. These returns form the subject matter of two publications; the one relating to landed property and inhabited localities contains the following tables, arranged according to districts, groups of districts, and governments:—

1. Extent of landed property, arranged in categories of individual proprietors, rural communes, State, appanage land, churches, convents, towns, companies, societies, and institutions.

2. Extent of land owned by individual proprietors, distinguishing that held by nobility, clergy, merchants, bourgeois, peasants (ex-serfs and crown and appanage peasants), soldiers, foreigners, and others.

3. Extent of land held by rural communes, distinguishing those persons holding under each commune, whether ex-serfs, ex-crown, or ex-appanage peasants.

4. Land held by individual proprietors, classed according to extent of holdings—from 1 to 10 dessiatines (the dessiatine being equivalent to 2·702 acres), 10 to 100, 100 to 1,000, and 1,000 to 10.000; estates of more than 10,000 dessiatines being separately distinguished.

5. Extent of land owned by individual proprietors, showing number of proprietors and amount held by each.

6. Extent of communal land, showing number of peasants, quality of soil, and mode of tenure.

7. Number of inhabited localities, showing number of inhabited houses, and of what materials constructed.

8. Total number of dwellings, classed according to the materials of which constructed, whether of stone or brick, wood, clay, or mud, and specifying in each case the methods of roofing, distinguishing also those held by ex-serfs, and those in the occupation of appanage and crown peasants.

The first volume, which has recently been issued, is devoted to statistics relating to the above, and it is with this volume we now propose to deal, leaving for the present the consideration of the other, which treats of land belonging to the different communes. The district referred to in the first volume is the region comprising the eight governments of Koursk, Toula, Voronej, Tambow, Penza, Orel, Riazan, and Kaluga, covering an area of 324,000 square versts, with a population of 12,700,000 souls; and in this region four distinct zones may be traced, differing in every respect from each other. The first and most typical of these is the central, "Tcher-"nozème," where the fallow land is not tilled. This zone, in which are situated the districts of Koslow, Lebedian, and Lipetsk, forming part of the government of Tambow; the districts of Venew, Krapivna, Bogoroditsk, Epiphane, Tchern, Novossil, and Efremow, in the government of Toula; the districts of Zadousk, Zemliansk, Nijnedievitsk, Korotoïak, and Birioutch, forming part of the government of Voronej; the districts of Yeletz, Livny, Malo-Archangel, Mtsensk, Bolkhow, Orel, and Kromy, in the government of Orel; the whole of the government of Koursk; and the districts of Mikhaïlow, Pronsk, Skopine, Dankow, Ranenbourg, and Riajsk, in the government of Riazan extends over an area of 123,000 square versts, and ranks among the most densely populated districts of Europe, having a population of 5,800,000, about 50 inhabitants to the square verst, almost the same proportion as is found in certain parts of Eastern Prussia. The land is almost exclusively black soil, but by reason of it having been repeatedly worked over, its richness is gradually becoming exhausted, and it requires plentifully manuring. Timber land is rapidly disappearing, only a few oak and birch trees now being left to show where forests once stood. The triennial rotation of crops is the principal mode of cultivation practised, the fallow land being entirely neglected, even on the estates of the landed gentry. Agriculture is extremely well developed, four-fifths of the whole area being arable land; and there is a prevalence of small proprietorships. The second zone, which may be distinguished as the eastern "Tchernozème," of half fallow land, extends to the east of the former, and embraces the districts of Tambow, Kirsanow, Borissoglebsk, and Ousman, in the government of Tambow; the districts of Voronej, Bobrow, Novokhopersk, Bogoutchar, Pavlovsk, Ostrogojesk, and Valoniki, in the government of Voronej; and the entire province of Penza, with the exception of the district of Gorodistche. Its area is about 95,000 square versts, and it has a population of rather more than 3,300,000, 35 inhabitants to the square verst. The soil in this zone is considerably richer than that of the preceding one, or rather it has not yet become so exhausted, but towards the south there is a total absence of timber and a great scarcity of water. The prevalent system of farming practised by the peasants is that of the triennial rotation of crops, and on the estates belonging to the landed gentry a large quantity of fallow land is to be found. The proportion of arable land, though less than that of the preceding zone, is as high as 70 per cent., and there is not such an extensive subdivision of the soil in this zone as in the three others.

The districts of Morschansk, Schatsk, and Spassk, belonging to the government of Tambow; Sapojok, Spassk, Riazan, and Zaraisk, in the government of Riazan; Alexine, Kaschira, Toula, Odoïew, and Belew, in Toula; Peremyschl, Likhvine, Kozelsk, and Meslchovsk, in Kaluga; and Dmitrovsk, Karatchew, and Sievsk, in Orel, form the third zone, which may be termed the "transition" zone, and it extends to the north of the first, spreading over an area of 53,000 square versts, and has a population of 2,000,000—38 to the square verst. As a rule the soil is clayey, with a considerable admixture of sand, and therefore not very productive, owing the little fertility it possesses chiefly to extensive manuring. In this zone, as the soil is not very favourably disposed to the development of husbandry, the population is largely engaged in commercial and industrial pursuits, and the proportion of arable land to total area is as low as 55 per cent. Lastly, the fourth zone, which is at the same time well wooded and devoted to industrial pursuits, embraces the extreme region of the north, north-east, and north-west; it is composed of the districts of Elatma and Temnikow, in the government of Tambow; Gorodistche, in Penza; Borovsk, Malviraslavets, Taroussa, Kaluga, Medyne, Mossalsk, and Jizdra, in Kaluga; Troubtchovsk and Briansk in Orel; and Egorievsk and Kassimow in the government of Riazan. Although its area is equivalent to that of the preceding zone (about 53,000 square versts), it has only a population of a little over 1,500,000 (about 28 to the square verst). With the exception of the district of Gorodistche, which is comparatively rich and fertile, the soil is principally composed of marl and sand; drainage and manuring therefore are matters of considerable importance to the farmer. In places it is entirely unfit for cultivation, being chiefly irreclaimable marsh land covered with a profusion of tangled brushwood. Hemp is cultivated in preference to corn crops, and about 35 per cent. of the land only is devoted to agricultural pursuits. The peasants are all more or less indirectly interested in the development of manufacturing industries.

To compensate in some measure for this unproductiveness, there is an abundance of timber, in some districts covering as much as a third of the total area. This is a considerable source of wealth, as it supplies neighbouring districts with large quantities of wood for building and other purposes.

The extent of land belonging to each government as established by the recent enquiry, is shown in the following table:—

Governments.	Dessiatines.
Tambow	5,630,000
Voronej	5,630,000
Orel	4,017,000
Koursk	3,994,000
Riazan	3,527,000
Penza	3,324,000
Kaluga	2,704,000
Toula	2,656,000
Total	31,482,000

This total agrees within a very little with the result of a survey made by Colonel Strelbitzky of the same eight provinces, and the difference which exists is accounted for by waste and uncultivated land, roads, lakes, &c., which are not included in the actual returns of landed property; and as the figures furnished by the Central Statistical Committee so nearly agree with those given by Colonel Strelbitzky, it may be taken as a proof of the general accuracy of the work.

In these eight governments 20,510,000 dessiatines (about two-thirds of the total area, or 65 per cent.) is arable land, as a glance at the following table will show:—

Governments.	Dessiatines.	Percentage of Cultivable Land.
Koursk	3,073,000	76
Toula	1,938,000	73
Voronej	3,837,000	68
Tambow	3,707,000	66
Penza	2,185,000	66
Orel	2,536,000	63
Riazan	2,026,000	57
Kaluga	1,208,000	44
Total	20,510,000	65

We shall not devote any particular attention to the study of the diversity existing in the proportions of cultivable land to total area, as the variations may be accounted for by the distinctive features which we have already pointed out as characterising the different regions. As regards the proportion of arable land to total population, the divergences are not great. In Tambow and Penza the proportion to each male is in the ratio of 3·9 dessiatines; in Voronej 3·8, Toula 3·7, Koursk 3·5, Orel 3·3, Riazan 2·9, and in Kaluga 2·8; *i.e.*, briefly, 4·0 dessiatines in the central "Tchernozème," 3·7 in the eastern, 3·1 in the "transition," and 2·8 in the industrial and wooded zone. It will be observed from the foregoing that in those regions where it is a comparatively easy matter to render farming a profitable occupation, more attention has been paid to agricultural industries than in the districts where the sterility of the soil makes it a difficult matter for the peasant to obtain the means of existence by tilling and cultivation.

Of the 31.482,000 dessiatines which make up the total extent of landed property in the eight governments referred to, 17,738,000, or 56 per cent., belong to the peasants; 11,541,000, or 37 per cent., to proprietors by individual right; 1,359,000, or 4·3 per cent., to the State; and 844,000, or 2·7 per cent., to churches, convents, and different institutions.

The following table shows the distribution of these figures:—

Governments.	Peasants.	Individual Proprietors.	State.	Other.
Voronej	3,766,000	1,642,000	103,000	119,000
Koursk	2,465,000	1,416,000	45,000	68,000
Riazan	1,925,000	1,391,000	155,000	56,000
Penza	1,799,000	1,283,000	193,000	49,000
Tambow	2,992,000	2,030,000	495,000	113,000
Kaluga	1,427,000	1,058,000	94,000	125,000
Toula	1,354,000	1,202,000	44,000	56,000
Orel	2,010,000	1,519,000	230,000	258,000

And the proportion to each Government will be seen below :—

Governments.	Peasants.	Individual Proprietors.	State.	Other.
	Per cnt.	Per cnt.	Per cnt.	Per cnt.
Voronej	66	30	1·8	2·1
Koursk	62	35	1·1	1·7
Riazan	55	39	4·4	1·6
Penza	54	38	5·8	1·5
Tambow	53	36	8·8	2·0
Kaluga	53	39	3·5	4·6
Toula	51	45	1·7	2·1
Orel	50	38	5·7	6·4

The proportion of peasant lands attains its maximum, 61 and 62 per cent., in the two "Tchernozème" zones, where the soil is of a highly productive nature, and is as low as 43 per cent. in those which are heavily timbered and devoted to manufacturing and other industries; for landed proprietors, it is at the rate of 39 per cent.; for the State 12 per cent.; and for churches, convents, &c., 6 per cent. If then the peasants are in the enjoyment of more than half, *i.e.*, 56 per cent. of the total extent of the soil, the proportion of arable land under their tenure is at the rate of 66 per cent., while that owned by the landed gentry only amounts to 31 per cent., and for the State, churches, &c., 2 per cent. There are considerable divergences in the proportional rates in the different governments, as will be seen in the following table:—

	Proportion of Arable Land to Total Area belonging to		
	Peasants.	Individual Proprietors.	State, &c.
	Per cnt.	Per cnt.	Per cnt.
Voronej	76	22	3
Tambow	63	32	3
Koursk	66	32	2
Orel	64	34	2
Penza	64	34	2
Riazan	65	33	2
Toula	56	42	2
Kaluga	79	18	3
Average	66	31	2

We will now take one of the great divisions of landed property the land owned by individual proprietors. The result of the enquiry shows that the number of proprietors in this category amounts to 93,961, owning altogether about 11,541,000 dessiatines. Of this number 78,644, or rather more than four-fifths (83 per cent.), belong to the class of small proprietors who own less than 100 dessiatines, and the total extent of land held by them amounts to 1,152,000 dessiatines, or about a tenth part of the whole.

Of these 78,644 proprietors, there are 50,160 the limit of whose property is 10 dessiatines; the majority in fact own considerably less than this amount, as the total extent of land in this category being only 184,000 dessiatines, it gives an average allotment of only 3·6 dessiatines to each proprietor. The remaining 28,484 small proprietors own from 10 to 100 dessiatines each, with a total of 968.000 dessiatines; this gives an average of 34 dessiatines to each holder of land. The class of "medium proprietors" is composed of persons owning from 100 to 1,000 dessiatines. The number of these is 13,294, abont 14 per cent. of the total, and the extent of land held by them amounts to 4.295.000 dessiatines, representing a proportion of 37 per cent. of the total extent of land held by individual proprietors. The following table shows the number of proprietors and extent of land held:—

Dimensions of Property.	Number of Proprietors.	Total Extent of Land Held.
Dessiatines		Dessiatines.
From 100 to 200	5,071	738,000
„ 200 „ 300	2,794	690,000
„ 300 „ 400	1,666	582,000
„ 400 „ 500	1,235	553,000
From 100 to 500	10,766	2,563,000
„ 500 „ 1,000............	2,528	1,732,000
Total	13,294	4,295,000

Next in order comes the class of large proprietors, which is composed of 2,023 persons (2 per cent.), and this class is by far the most important, by reason of the large extent of land held, which amounts to 6,094.000 dessiatines, or more than half (53 per cent.) of the total extent of landed property.

Dimensions of Property.	Number cf Proprietors.	Total Extent of Land Held.
Dessiatines.		Dessiatines.
From 1,000 to 5,000	1,800	3,443,000
„ 5,000 „ 10,000	141	948,000
Above 10,000	82	1,703,000
Total	2,023	6,094,000

The proportion of large, medium, and small properties, to a total of these three heads, varies according to the district in which they are situated. The following table shows the variations and the average dimensions of the different holdings and farms:—

Governments.	Proportional Number of Proprietors.			Average Extent of each Property.
	Small.	Medium.	Large.	
	Per cnt.	Per cnt.	Per cnt.	Dessiatines.
Koursk	90	9	1	59
Riazan	88	11	1	81
Kaluga	85	13	2	99
Orel	83	15	2	121
Toula	77	21	2	122
Tambow	76	19	5	222
Voronej	76	20	4	279
Penza	72	22	6	272
ZONES.				
"Tchernozème, without fallow"	87	12	1	80
" ,, half fallow"	71	23	6	418
"Transition"	85	13	2	109
Industrial and wooded	84	14	2	150
Average	83	14	2	123

On examining the above, it results that in those districts where for some considerable time great attention has been paid to the cultivation of the land, the proportional number of small proprietors is highest; for example, in the governments of Koursk, Riazan, Kaluga, Orel, and Toula, which formerly formed part of the independent appanage principalities, it varies from 77 to 90 per cent., while it is as low as 72 to 76 per cent. in Tambow, Voronej, and Penza. The average extent of each property varies between 222 and 279 dessiatines in the latter province, and 59 and 122 in the former.

The zone possessing the largest estates (averaging 418 dessiatines) is the "Tchernozème, half fallow," where Russian colonisation is of comparatively recent date. In the other zones the average extent appears in an inverse ratio to the fertility of the soil, it being represented by 150 dessiatines in the wooded zone, 109 in the "Transition," and 80 in the "Tchernozème, without fallow."

For every hundred dessiatines of land held, the relative proportion for each class of property is as follows:—

Governments.	Small.	Medium.	Large.
Koursk	19	44	37
Riazan	14	40	46
Kaluga	12	41	47
Orel	11	42	47
Toula	10	57	33
Tambow	7	31	62
Voronej	6	25	69
Penza	5	26	69
ZONES.			
"Tchernozème, without fallow"	15	49	36
" ,, half fallow"	5	25	70
"Transition"	11	38	51
Industrial and wooded	7	29	64
General average	10	37	53

The same variations which characterise the proportional number of proprietors appear in the above. It will be seen then, that in the government of Koursk there is a preponderance of small properties. As regards the medium sized, the proportion is highest in Toula; while in the governments of Tambow, Voronej, and Penza about two-thirds of the soil are owned by large proprietors.

Of every 100 dessiatines of land owned by individual proprietors, four-fifths belong to the nobility; about a tenth part, or 11 dessiatines, to the merchant class; 7 dessiatines to the peasants, distributed as follows:—4 to the crown peasants, and 3 to ex-serfs—and 2 to the "bourgeoisie," the clergy being represented by an extent considerably under 1 dessiatine. In a numerical point of view it is the peasants who hold the first rank; out of every 100 proprietors 61 are peasants (32 ex-crown and 29 ex-serfs), 26 nobles, 7 bourgeois, 4 merchants, and 1 the church. The following table shows the number of each class of proprietors, and extent of land held:—

	Number of Proprietors.	Extent of Land Held.
		Dessiatines.
Nobility	24,746	9,283,200
Merchants	3,380	1,284,713
Bourgeois	6,322	194,390
Crown peasants	30,333	409,213
Serfs	26,588	305,412
Clergy	1,167	30,113

The nobility, both as regards numbers and extent of property, is in excess of the other classes in the categories comprising the large and medium sized properties, but in small properties the peasants preponderate, as will be seen in the following statement:—

	Proportional Number of Properties.			Proportional Extent of Properties.		
	Small.	Medium.	Large.	Small.	Medium.	Large.
				Dessiatines.	Dessiatines.	Dessiatines.
Nobility	17	79	86	39	81	89
Merchants	2	12	14	2	12	11
Bourgeois	8	3	—	8	2	—
Peasants	73	6	—	51	5	—
	100	100	100	100	100	100

The average dimension of the lands belonging to the merchant class exceeds that of the nobility by 9 dessiatines, the figures being 380 dessiatines for the former, and 371 for the latter. This may be accounted for by the fact that the estates of the nobles, who are the oldest proprietors of the soil, have from time to time been more or less reduced by dowry allotments and inheritance, so that in a great many cases the portion belonging to a single individual has become infinitesimally small; whereas the merchants, whose ownership of the land is of comparatively recent date, have, with very few exceptions, acquired property included in the category of medium sized. The average dimensions, however, of estates belonging to both these classes vary very considerably according to the districts in which the property is situated, as a glance at the following table will show:—

Governments.	Average Size of Properties of	
	Nobility.	Merchants.
	Dessiatines.	Dessiatines.
Penza	657	580
Voronej	657	539
Tambow	582	579
Kaluga	420	401
Orel	401	304
Toula	311	191
Riazan	240	359
Koursk	205	222

Arranged according to progressive decrease, these eight governments follow in nearly the same order both for the nobility and the merchants.

In the foregoing we have pointed out that in the total distribution of individual property the nobility is represented by four-fifths, and the merchants by one-tenth of the total extent. We have now to examine the relative importance of the remaining classes of landowners, taking first the bourgeois, which is only of importance in the class of small properties, in which it represents 8 per cent. in number and extent; as regards the whole extent of individual property it represents only 2 dessiatines per cent. Much smaller still is the proportion of the church, which, in the whole of the district comprising the eight governments, can only count among its members 5 per cent. of the total number of landed proprietors, that is, 1,167 ecclesiastics, owning altogether about 30,115 dessiatines, only ¼ per cent. of the total extent of individual property; but at the same time the fact must not be lost sight of, that the clergy are in the enjoyment of church lands to the extent of 330,440 dessiatines, making up a total therefore of 360,000 dessiatines of landed property owned by them, or of which they have the usufruct. This gives an average of 27 dessiatines to each parish priest, and 12 dessiatines to each deacon or sub-deacon. This general average is inferior only to the provincial averages of the three governments of Kaluga, Orel, and Tambow, and it exceeds that of the remaining five governments, as will be seen in the following table :—

Governments.	Average to each	
	Parish Priest.	Deacon or Sub-Deacon.
	Dessiatines.	Dessiatines.
Tambow	29	13
Toula	25	11
Penza	24	10
Kaluga	37	17
Voronej	22	11
Orel	33	15
Koursk	25	10
Riazan	26	11

Of the 360,000 dessiatines owned by the clergy, or of which they enjoy the usufruct, 267,000, or 74 per cent., is arable land, a considerably higher percentage than characterises the land belonging to the nobility, but corresponding with that shown by peasant lands. M. de Séménow estimates the average revenue derived from church lands at 170 roubles for each priest, and 64 roubles for each deacon and sub-deacon. The military and other classes of proprietors possess 1,303 estates, amounting in the aggregate to 19,404 dessiatines, or 0·17 per cent. of the total extent of individual property. Foreigners form a still more insignificant element, the number of proprietors in this category amounting only to 47, owning 12,833 dessiatines, or an average extent of 292 dessiatines to each estate.

We now come to the question of the importance of the land owned by the peasants, who have already acquired 715,480 dessiatines, or 6½ per cent. of the total extent of individual property. The distribution of these figures is as follows :—

	Ex-Seignorial Peasants.	Ex-Crown and Appanage Peasants.
	Dessiatines.	Dessiatines.
Tambow	32,683	60,982
Toula	30,540	28,625
Penza	26,594	26,536
Kaluga	82,764	24,879
Voronej	10,504	56,036
Orel	33,794	64,971
Koursk	25,492	105,670
Riazan	63,041	42,369
Total	305,412	410,068

Out of the total number of individual proprietors, 56,996 are peasants, that is about 6·6 per cent. The proportion is as high as 9·9 per cent. in the governments of Toula and Kaluga, 10·2 per cent. in Riazan, and 11·3 per cent. in Koursk. The relative proportion for the different governments is as follows:—

Governments.	Ex-Seignorial Peasants.		Ex-Crown and Appanage Peasants.	
	Number of Proprietors.	Proportion to Total.	Number of Proprietors.	Proportion to Total.
		Per cnt.		Per cnt.
Tambow	2,586	2·1	2,612	1·7
Toula	2,861	2·5	2,337	7·4
Penza	968	1·6	1,302	1·5
Kaluga	5,926	5·7	1,430	4·2
Voronej	689	0·8	2,338	1·1
Orel	3,215	2·9	4,403	4·8
Koursk	3,839	3·6	11,701	7·7
Riazan	6,504	4·9	4,285	5·3
Total	26,588	3·0	30,408	3·6

It would appear then that the average extent of individual property belonging to the peasants is 11 dessiatines for ex-serfs, and 13 dessiatines for ex-crown and appanage peasants, but these are the general averages of the whole region comprised by the eight governments. Taking each province separately, it will be seen that the averages are highest in Tambow, Penza, Kaluga, and Voronej, and lowest in Koursk and Riazan.

Governments.	Average Size of Property Held.	
	By Ex-Serfs.	By Ex-Crown and Appanage Peasants.
	Dessiatines.	Dessiatines.
Tambow	13	23
Toula	11	12
Penza	27	20
Kaluga	14	17
Voronej	15	24
Orel	11	15
Koursk	7	9
Riazan	10	10

Although the rapidly increasing relative importance of the lands owned by the peasant class is an established fact, it is but inconsiderable when compared with the extent possessed by rural communes, which as corporate bodies became the purchasers of the land. These show a total of 17,631,465 dessiatines, distributed among 5,830,408 male peasants, representing 1,713,059 families. The following table gives the number of each class of peasants, and total extent of land held in the different provinces:—

Governments.	Ex-Serfs.			Ex-Crown and Appanage Peasants.		
	Number of Families.	Number of Male Peasants.	Extent of Land Held.	Number of Families.	Number of Male Peasants.	Extent of Land Held
	No.	No.	Dessiatines.	No.	No.	Dessiatines.
Tambow	124,714	409,825	826,787	156,341	554,819	2,152,323
Toula	116,146	417,250	958,037	31,438	113,492	391,896
Penza	91,194	287,694	624,936	82,206	285,451	1,170,170
Kaluga	103,633	329,932	955,459	33,708	105,643	439,554
Voronej	85,460	291,632	572,865	210,769	732,636	3,189,060
Orel	113,901	397,434	944,362	91,610	322,094	1,061,937
Koursk	106,432	358,232	652,891	151,478	519,017	1,804,141
Riazan	134,164	437,153	1,003,685	79,865	268,104	883,362
Total	875,644	2,929,152	6,539,022	837,415	2,901,256	11,092,443

If we add to the 17,631,500 dessiatines of land owned by the peasants in rural communes, the 106,500 dessiatines purchased by the latter, and 715,500 dessiatines held by individual peasant proprietors, we arrive at a total of 18,453,000 dessiatines, or 58·6 per cent. of the total extent of the land referred to in the recent statistical publications. More than three-fourths of this extent, about 14,228,000 dessiatines, or 77 per cent., is arable land, and the greater part of this, viz., 70 per cent., is cultivated by the peasant class. It has been shown by the table given above, that though the extent of land held by the communes is not equally distributed among the two classes of peasants, yet in a numerical point of view there is not a very great difference between them; for instance, whereas ex-crown and appanage peasants holding under communes, and counting a population of 2,901,000 male souls, have received 11,092,000 dessiatines, the ex-serfs, who have a population of 2,929,152 males, only possess 6,539,000 dessiatines. The average extent of land for each male in the crown and appanage class is therefore 4·8 dessiatines, and only 2·7 for the serfs.

The rapid increase of the population which during the last twenty years has taken place in a rich and fertile district, has naturally had the effect of considerably modifying these proportions. At the present time, however, they may be approximately estimated at 3·8 dessiatines to each male belonging to the crown and appanage class, and 13·1 to each family, and 2·2 and 7·5 to each male and each household in the ex-serf class.

The great difference that exists in the quantity of land conceded to these two classes admits of easy explanation. With the exception of a certain quantity of forest land in the wooded zone which has been reserved, the State has granted to the crown peasants almost the whole extent of land which it originally possessed, while the law of 19th February, 1861, only granted to the ex-serfs the lands of which they had actually enjoyed the use, fixing at the same time a maximum and minimum limit to the several parcels so granted. The law further authorised the peasants to diminish their concessions within these limits by mutual agreement with the proprietors, and to exonerate themselves from all payments by accepting concessions reduced to one-fourth of the maximum extent. The old landed proprietors have preserved then not only the land cultivated by themselves, but that portion cultivated by the peasants which exceeded the maximum fixed by the law relating to concessions, and also the land which the peasants have themselves renounced in order to alleviate the conditions of purchase. Speaking generally, in every 100 dessiatines, 41 have been allotted to the peasants and 59 have remained the property of the seignorial class; but taking into account the lands which the nobility have sold, the extent conceded to the peasants is to that which the proprietors possessed at the moment of purchase, in the proportion of 38 to 62.

In sixteen of the ninety-six districts comprising the eight governments, rather more than half of the lands of the nobility have been ceded to the peasants by purchase. The concessions represent a proportion of 40 to 50 per cent. in thirty-seven of these districts, from 30 to 40 per cent. in twenty-nine, and 20 to 30 per cent. in thirteen; in only one district, that of Bobrovsk, does the proportion descend as low as 17 per cent. The average extent actually conceded to peasants belonging to the ex-serf class was from 2 to 3 dessiatines for half of the number, a quarter received from 3 to 4, and for an eighth part the amount was between 1 and 2; of the whole number, 8 per cent. (representing orphans) received portions averaging considerably less than 1 dessiatine. If we take a table distinguishing the four zones, it will be seen that the variations in the proportional numbers of peasants in the ex-serf class are in some cases very considerable.

To every Hundred Ex-Serfs receiving Concessions.

Extent.	Proportion			
	In the "Tchernozème without Fallow."	In the "Tchernozème Half Fallow."	In the "Transition Zone."	In the Industrial and Wooded Zone.
Dessiatines.	Per cnt.	Per cnt.	Per cnt.	Per cnt.
Under 1........	4·6	19·7	6·4	5·7
From 1 to 2	17·6	12·4	8·6	6·3
„ 2 „ 3	71·0	27·3	49·9	22·4
„ 3 „ 4	6·4	38·2	32·1	48·4
„ 4 „ 5	0·3	2·2	2·5	13·9
„ 5 „ 6	0·1	0·2	0·3	1·9
Above 6........	0·0	0·0	0·2	1·4
	100·0	100·0	100·0	100·0

We will now consider to what extent the variations which appear in the above proportions are affected by the conditions of tenancy or proprietorship. In the "Tchernozème without fallow," where the annual redemption payments were less than the rent, the peasants as a rule elected to retain the whole of the land cultivated by them, about 2 to 3 dessiatines to each, and nearly three-fourths of them obtained concessions to this extent; in the three other zones, on the contrary, the amount of rent was not equal to the redemption payments, but in the "transition" zone the difference is insignificant, and the peasant allotments, generally speaking, greater than in the central "Tchernozème," have been to a very inconsiderable extent modified by purchase.

There was a very great difference in the "Tchernozème half "fallow" zone, between the rental and the annual redemption payments. There, notwithstanding the fertility of the soil, land could be easily leased at a rental of from 1 to 2 roubles the dessiatine, yet the annual redemption payment was at the rate of 2 roubles to 2 roubles 40 copecs per dessiatine. Under these circumstances the peasants demanded free grants, that is, allotments of less than one dessiatine; and a large number of proprietors thought it better to grant these concessions and to sacrifice a certain amount of rent and purchase money, and this the more readily as they could let a considerably larger quantity, and they also had the prospect of seeing within a short space of time their rents considerably increased. Finally, in the industrial and wooded zone, where the annual redemption payment was considerably higher than the rental, free allotments were the exception, as the landed proprietors had no interest in retaining land of which the rental had not till then been nearly equal to the redemption payments.

The proportions already shown for the four zones are distributed as follows among the eight governments :—

To every Hundred Ex-Serfs receiving Concessions.

Extent.	Proportion in							
	Tambow.	Toula.	Penza.	Kaluga.	Voronej.	Orel.	Koursk.	Riazan.
Dessiatines.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.
Under 1	12·2	1·3	19·0	2·9	17·5	2·4	8·9	6·3
From 1 to 2	15·3	11·3	11·9	3·0	19·6	7·0	24·4	11·3
„ 2 „ 3	53·1	75·1	30·2	16·8	33·0	62·3	59·0	54·4
„ 3 „ 4	19·1	11·5	35·6	65·9	26·4	20·5	7·7	21·9
„ 4 „ 5	0·2	0·6	2·7	9·7	3·1	7·4	0·0	3·8
„ 5 „ 6	0·1	0·1	0·3	1·1	0·4	0·3	0·0	1·2
Above 6	0·0	0·1	0·3	0·6	0·0	0·1	0·0	1·1
	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0

As regards the ex-crown and appanage peasants, nine-tenths secured rather more than an average extent of 3 dessiatines—in round numbers, out of 100 members of this class 26 received from 4 to 5, 24 from 3 to 4, 22 from 5 to 6, and 19 more than 6 dessiatines of land. It will be observed that the proportional number of crown and appanage peasants distributed among the governments and natural divisions fixed by the Statistical Committee, is not characterised by those divergences which appear in the case of the serfs.

To every Hundred Crown and Appanage Peasants receiving Concessions.

Extent.	Proportion			
	In the "Tchernozème without Fallow."	In the "Tchernozème Half Fallow."	In the "Transition" Zone.	In the Industrial and Wooded Zone.
Dessiatines.	Per cnt.	Per cnt.	Per cnt.	Per cnt.
Under 1	0·2	0·1	0·1	0·1
From 1 to 2	1·6	0·2	5·0	2·5
„ 2 „ 3	10·4	2·1	13·6	11·2
„ 3 „ 4	30·3	12·7	29·2	23·8
„ 4 „ 5	30·0	22·1	21·6	23·2
„ 5 „ 6	18·2	29·3	17·2	17·7
Above 6........	9·3	33·5	13·3	21·5
	100·0	100·0	100·0	100·0

To every Hundred Crown and Appanage Peasants receiving Concessions.

Extent.	Proportion in							
	Tambow.	Toula.	Penza.	Kaluga.	Voronej.	Orel.	Koursk.	Riazan.
Dessiatines.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.
Under 1	0·0	0·6	0·1	0·0	0·1	0·2	0·3	0·1
From 1 to 2	1·2	3·6	0·4	3·7	0·2	1·7	2·5	3·1
„ 2 „ 3	3·1	12·6	4·1	13·4	2·4	11·2	15·1	14·6
„ 3 „ 4	17·1	27·0	21·1	25·6	12·0	43·5	25·8	41·1
„ 4 „ 5	31·2	31·2	26·9	21·6	21·6	28·2	28·0	18·7
„ 5 „ 6	32·1	16·3	27·8	16·0	24·0	8·9	19·2	14·6
Above 6	15·3	8·7	19·6	19·7	39·7	6·3	9·1	7·8
	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0

The result of the statistical inquiry points out very clearly the changes effected by purchase, which have taken place in recent years in the possession of landed property. Before 1861 the land in the eight governments was approximately distributed as follows:—17,500,000 dessiatines, or rather more than 55 per cent. of the total, was in the possession of the nobles; 11,000,000, or 35 per cent., belonged to the State; 1,500,000, or 5 per cent., to the class of small proprietors; and the same quantity to churches, convents, towns, merchants, bourgeois, and others. At the end of 1877 the peasants were in possession of nearly 18,500,000 dessiatines, or 58·6 per cent. of the total; the proportion held by the nobles was reduced to 29·5 per cent., representing about 9,283,000 dessiatines, and the remaining 12 per cent. was in the hands of the State, church, towns, &c.

M. de Séménow, taking as a basis the valuations made by land banks and "zemstvos," estimates the value of peasant land in the "Tchernozème without fallow" zone at 80 roubles the dessiatine; in the "Tchernozème half fallow" at 70 roubles; in the "Transition zone" at 50 roubles; and in the industrial and wooded zones at 35 roubles the dessiatine. By the aid of these computations, which correspond to the capitalized value of the leases at the rate of 6 per cent., and which seem rather below than above the mark, M. de Séménow arrives at the following amounts, representing the approximate total value of the landed property held by peasants, that is, its capital value, less the purchase charges with which it is burdened:—

Property Held by Ex-Serfs.

	Roubles.
2,627,000 dessiatines in Zone I @ 80 roubles the dessiatine	210,000,000
1,240,000 ,, II ,, 70 ,, ...	87,000,000
1,564,000 ,, III ,, 50 ,, ...	78,000,000
1,413,003 ,, IV ,, 35 ,, ...	50,000,000
Total	425,000,000
Buildings and dependencies—875,000 houses @ 150 roubles each	131,000,000
Total	556,000,000
Less redemption advances (without amortization)	171,000,000
,, capitalization of temporary advances	68,000,000
Total	239,000,000
Net capital property of the ex-serf class	317,000,000

Property Held by Ex-Crown and Appanage Peasants.

	Roubles.
5,130,000 dessiatines in Zone I @ 80 roubles the dessiatine	410,000,000
4,386,000 ,, II ,, 70 ,, ...	307,000,000
1,072,000 ,, III ,, 50 ,, ...	53,000,000
914,000 ,, IV ,, 35 ,, ...	32,000,000
Total	802,000,000
Buildings and dependencies—837,000 structures @ 200 roubles each	175,000,000
Total	977,000,000
Less capitalization of advances	119,000,000
Net capital of ex-crown and appanage peasants	858,000,000

It will be seen from the above statement, that the value of landed and house property held by the peasants represents a total of 1,533 million roubles, and deducting the hypothecation amounts with which the terms of redemption have burdened it, it leaves a total of 1,175 million roubles this gives an average net capital of about 350 roubles to each family in the serf class, and rather more than 1,000 roubles to each family in the crown and appanage class. Taking the actual net revenue derived from the land, after deducting expenses incurred in tilling and cultivation, and annual redemption payments, M. de Séménow estimates the amount derivable by each family in the former category at 21 roubles, and 61 roubles in the latter. Following the same system of valuation, the landed property of the nobility in the eight governments referred to, represents a total value of 592,350,000 roubles; that owned by the merchants 75,660,000 roubles; and other classes 1 million roubles, amounting in the aggregate to 669 million roubles. If we add this amount to the 1,533 million roubles representing the value of the peasant lands, we arrive at a grand total value of 2,202 million roubles for the whole of the region referred to in the inquiry.

The volume recently issued gives some very interesting and detailed information respecting the different systems of land tenure, practised by the peasant class. Out of 17,631,500 dessiatines granted to rural communes, 1,900,000 or about 11 per cent. are cultivated by individual or family proprietors, and about nine-tenths or 89 per cent. come under the *régime* of communal property. There is a much larger proportion of individual and family proprietorships in the ex-crown peasant class than among the ex-serfs. Of the whole extent of land held by the latter, only 199,595 dessiatines, or rather more than 3 per cent., appear in this category, whereas in the former it is represented by an extent of 1,724,952 dessiatines, or about 15·6 per cent. The government of Koursk shows the highest proportion, it being in the ratio of 53 per cent. In some districts of this government the percentage is even higher than this, mounting as high as 97 per cent. in Tim, 83 per cent. in Soudja, and varying between 74 and 78 per cent. in Stary-Oskol, Rylsk, Stchigrow and Fatège. In Orel it is about 32 per cent., and in Toula 23 per cent. In those districts which are distinguished by such a large proportion of land owned by individuals or families, this mode of tenure by crown peasants has been extensively practised for some considerable time; the act of purchase, so far as they are concerned, has simply confirmed their right to the possession of land in which for many years they had enjoyed a kind of proprietary right, and in this respect there is a very great difference between them and the same class who inhabit the governments of Voronej and Tambow, where Russian colonisation is only of very recent date, and in which the proportion of individual or family property is represented by 3 per cent. and 7 per cent. respectively. In Kaluga, one hundreth part only of the whole extent of peasant land may be included in this category; and this proves that a very powerful factor, viz., the sterility of the soil, exercises a considerable influence in the distribution of land held by the individual peasant or by peasant families.

Among the serfs the system of individual tenure was comparatively unknown before the year 1861, and since the purchase system was introduced, less than 200,000 dessiatines have passed from the hands of collective proprietors into the possession of individuals or families, and it is only in the government of Toula that the extent of land transfer assumes any great importance; in this government 70,000 dessiatines, belonging to 274 communes, and comprising 8,500 families, were transferred. Next in order of importance ranks the government of Koursk, where the peasants of 184 communes divided among them 32,000 dessiatines, or 5 per cent. of the whole extent originally held by the serfs in this district. In the other governments the amount is insignificant, and in

Tambow individual tenure is even unknown to the serfs to the present day. The following table shows the extent of landed property held by both classes of peasants, and its distribution among the eight governments :—

Land Held under the Individual or Family Régime.

Governments.	In the Serf Class.	In the Crown Peasant Class.	Total.
	Dessiatines.	Dessiatines	Dessiatines.
Tambow	—	43,108	43,108
Toula	70,021	91,411	161,432
Penza	10,249	79,553	89,802
Kaluga	20,554	4,495	25,049
Voronej	20,287	99,790	120,077
Orel	18,769	343,282	362,051
Koursk	32,016	961,754	993,770
Riazan	27,699	101,559	129,258
	199,595	1,724,952	1,924,547

Proportion per cent. to Total Extent conceded.

Governments.	In the Serf Class.	In the Crown Peasant Class.
Tambow	—	2·0
Toula	7·3	23·3
Penza	1·6	6·8
Kaluga	2·2	1·0
Voronej	3·5	3·1
Orel	2·0	32·3
Koursk	4·9	53·3
Riazan	2·8	11·5

M. de Séménow, in a preface to the work, directs attention to the rapid increase of the population which of late years has taken place in Russia; a glance at the table below will show in what degree it has been affected by the material condition of the people in the four zones referred to in the inquiry :—

Proportional Increase in the Population during Twenty Years, comprised between 1858 *and* 1878.

Zones.	In the Serf Class.	In the Crown and Appanage Peasants Class.
	Per cnt.	Per cnt.
" Tchernozème without fallow "	19·6	25·0
" " half fallow "	20·3	28·6
" Transition "	18·2	20·4
Industrial and wooded	18·4	18·0
Whole region	19·2	25·1

There are two facts worthy of notice in connection with the foregoing table, and which bear testimony to the influence exercised by the degree of the favourable conditions of life over the increase of the population. In the first place, if we draw a comparison between the first two zones, where the soil is rich and fertile and of a highly productive nature, and the two last, which do not possess the same natural advantages, it will be seen that in the former the increase during the last twenty years has been considerably more marked than in the latter; and again, the ex-crown and appanage peasants, who enjoy a very much larger extent of land than the serfs, have greatly increased in numbers (if we except the industrial and wooded zones, where the increase has not been of any great importance), and it is evident that this increase is due in a great measure to the development of agriculture.

If we take a table showing the increase of the whole peasant population, classed according to the extent of the allotments obtained under the Emancipation Act, it illustrates still more clearly the influence exercised by easy circumstances resulting from the possession of good productive land.

Proportional Increase in the Population during Twenty Years comprised between 1858 *and* 1878.

Dimensions of Allotments.	Zones.				
	"Tchernozème without Fallow."	"Tchernozème Half Fallow."	"Transition."	Industrial and Wooded.	Whole Region.
Dessiatines.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.
Under 1	17·3	17·0	13·2	18·7	16·6
From 1 to 2	17·5	21·3	14·6	13·8	17·3
„ 2 „ 3	20·0	19·9	19·4	17·7	19·0
„ 3 „ 4	22·7	21·9	17·6	17·1	21·2
„ 4 „ 5	26·0	27·5	22·8	22·0	25·4
„ 5 „ 6	30·0	28·4	23·0	17·4	27·6
Above 6	30·6	33·1	24·1	20·0	30·3

The steadily progressive increase is clearly established in the above table, and as regards the whole region and the "Tchernozème without fallow" zone, it exhibits a remarkable regularity. In the three other zones there are slight deviations in the steadily increasing tendency of the proportional rate. In the "Tchernozème half fallow" zone there is always a chance for the peasant to lease land at a low rental, and in the transition zone it would appear that the varying nature of the quality of the soil is quite as important an element in determining the rate of increase as the actual extent of land held; and finally, in the industrial and wooded zones, the inhabitants are not altogether dependent upon the cultivation of the land for their means of subsistence, but devote themselves rather to manufacturing and other industrial occupations.

The enquiry undertaken by the Central Statistical Committee is not merely confined to statistics of land; it deals also with the question of house property; and the information furnished with respect to this class of property is of a varied and interesting description.

The number of rural communes in the eight governments amounts to 25,951, comprising 26,456 villages, and are distributed as follows:—

Governments.	Number of Communes.	Number of Villages.
Tambow	3,129	3,163
Toula	4,271	3,852
Penza	1,962	1,781
Kaluga	2,642	4,029
Voronej	1,989	2,376
Orel	3,537	4,119
Koursk	3,577	3,745
Riazan	4,844	3,391
Total	25,951	26,456

These 26,456 villages contain 1,893,091 houses, averaging 72 houses and 447 inhabitants of both sexes to each village. The proportion, both as regards houses and inhabitants, is highest in the governments of Voronej, Penza, and Tambow, and lowest in Toula and Kaluga, as a reference to the following table will show:—

Governments.	In each Village.	
	Average Number of Inhabitants.	Average Number of Houses.
Tambow	873	136
Toula	657	104
Penza	621	104
Kaluga	470	75
Voronej	423	67
Orel	353	56
Koursk	278	43
Riazan	223	38

Of the total number of 1,893,091 peasants' houses, of which the villages are composed, 1,819,005, or rather more than 95 per cent., are constructed of wood; 64,367, or 3·4 per cent., of brick and stone; and 9,655, or ·5 per cent., of mud. It will be observed that in comparison with the number of those built of wood, the proportion constructed of other materials is but insignificant, but still, when we consider that before the year 1861 there was scarcely a single brick building to be found in any of the villages, it cannot be denied that there has been a certain progress made.

In the "Tchernozème without fallow," where it is only by paying a high price for it that wood for building purposes can be obtained, the proportion of brick structures is at the rate of 6·1 per cent., and of mud ·5 per cent. In the other districts the proportion of brick houses is lower, being at the rate of 1·8 per cent. in the "transition zone," 1·4 per cent. in the industrial and wooded zone, and ·9 per cent. in the "Tchernozème half fallow," where, in addition, there is a percentage of 1·0 mud hovels.

The following table shows the proportional distribution by governments:—

Governments.	To every Hundred Houses.	
	Percentage of Brick.	Percentage of Mud.
Toula	15·1	0·2
Tambow	3·9	0·9
Riazan	3·6	0·3
Orel	2·9	0·3
Voronej	2·1	1·2
Kaluga	2·1	0·0
Penza	0·4	0·1
Koursk	0·2	0·3

The most striking feature in connection with this table is the exceptionally large proportion of brick houses in the government of Toula; and here the peasant compares favourably with the landed proprietor, the proportion of houses constructed of brick in the occupation of the latter class being about 16 per cent. This reform is due in a great measure to the action of the provincial "zemstvos," who, notwithstanding the fact that other materials are to be found in very large quantities in their district, are always ready to make advances to the peasants who desire to commence building operations with brick. The action of the "zemstvos" in this matter cannot be too warmly praised, and it is greatly to be desired that the provincial authorities of the other districts would follow the example set them by the "zemstvos" of Toula, as, if any proof were needed to show the very great advantage stone possesses over wood as a material for house construction, it is amply furnished in the number of fires which so frequently break out, and when attacking a wooden building, rage with such fury that it is almost a matter of impossibility to subdue them until the property is entirely destroyed.

There is of course a much larger proportion of brick and stone used in the construction of houses outside the villages and on the estates of the landed gentry, than is to be found in those inhabited by peasants. Out of 113,400 buildings, 102,877 are composed of wood, 9,451, or 8·4 per cent., of stone, and 962, or ·8 per cent., of mud. Here also may be noticed a certain improvement, which has taken place during the last twenty years. In the choice of building material the conditions of life of the landed proprietor play a more conspicuous *rôle* than in the peasant class, and the variations which appear in the proportions in the respective provinces are determined by these conditions of life and the abundance or scarcity of wood or stone :—

Governments.	To every Hundred Houses.	
	Percentage of Brick.	Percentage of Mud.
Toula	16·1	0·3
Tambow	11·7	0·3
Riazan	8·4	0·8
Voronej	7·1	5·1
Kaluga	6·9	0·1
Orel	6·0	0·3
Koursk	4·9	0·6
Penza	4·8	0·1

It would appear from the results of the enquiry into the methods employed in roofing, that no very great improvements have recently taken place; in the dwellings of the peasantry thatched roofs are invariably to be found, those made of wood representing only 5 per cent. of the total, while the proportion of iron is as low as ·2 per cent. In certain governments, however, there is a greater percentage of wooden roofs, in Riazan it is as high as 18 per cent.; in Kaluga 11·5 per cent., and 6 per cent. in Tambow and Penza. The use of tiles is only exceptionally adopted, as out of 1.893.000 dwelling houses, only 175 are roofed in this manner. Thatched roofs are also more generally found on the houses belonging to landed proprietors as well as those of the peasants, but this kind of roof is only represented by a proportion of 65 per cent., wood showing a percentage of 17 per cent., iron 14 per cent., and tiles rather more than ·5 per cent. Taking the different provinces, considerable variations will be found in these proportions; for example, the proportion of wooden roofs in Kaluga appears to be at the rate of 48 per cent., in Penza 43 per cent., in Riazan 28·5 per cent., and in Tambow 25·5 per cent., while for iron roofing the proportions are 20 per cent. in Tambow, 18 per cent. in Toula, 15·5 per cent. in Voronej, and about 14 per cent. in the governments of Orel and Riazan.

This brief notice is by no means to be considered an exhaustive review of the work recently issued by the Central Statistical Committee; containing as it does long series of tables, and produced in a manner which admits of numerous combinations, it constitutes a source of most valuable information for the study of a host of questions both economic and administrative, thus supplying a want which has until now been very much felt. We are compelled to take leave of this interesting volume with the consciousness that we have left many important parts of it untouched, but at the same time we have extracted what we consider the most salient points, taking our information chiefly from the excellent preface by M. de Séménow. We think, however, that this notice will suffice to show how important is the task which has been undertaken by the Committee, and the interesting facts which may be deduced from it. When the whole of the work is completed and the second volume published, the Russian empire for the first time will possess complete and detailed statistical information of landed and house property.

MISCELLANEA.

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I.—*Financial and Commercial History of* 1880.

The following introduction by Mr. Robert Giffen is taken from the Supplement to the *Statist* of 29th of January, 1881, in continuation of similar notices for previous years:—

Summing up of the Financial History of 1880—*Causes of the Present Trade Prosperity—The Peculiar Condition of the Money Market—The Position of the Stock Markets—Conclusion.*

"The proverb that 'A nation is happy whose annals are dull' may be applied with some truth to the business community of a nation. When business affairs are most prosperous there is usually but little to record. When there are great and exciting events, making a dramatic narrative possible, we may be sure that there has been something wrong. It is almost sufficient, then, to say of the past year that the business record is dull in order to characterise it as one of prosperity. Certainly, as compared with several previous years, though not devoid of genuine interest for men of business and economists, the year 1880 has not, in a business view, been sensational. In 1873 there occurred the Vienna and New York panics, with many commercial and financial failures, and with money touching 9 per cent. in London, and imminent danger of panic there. In 1874, the agitation of 1873 continued, with high rates for money and excited markets; although it was not quite so stirring a year as its predecessor. In 1875 occurred the great Collie failures, and the foreign loan collapses, including the default on the Turkish debt, which brought so much misery to thousands of investors and to the stock exchange and its *entourage*. In 1876 the excitement caused by the events of the previous year continued, the stock exchange being especially panic-struck. In 1877 came the commotion of the Russo-Turkish war, which had a great effect on business, because of the weakness in which the events of previous years had left it. In 1878 there occurred the gigantic City of Glasgow Bank failure, with its accompanying commercial break-down. And lastly, in 1879, though it was less stirring in one way than its predecessors, came that sudden and extraordinary revival of trade which we described a year ago, and which derived its dramatic interest from the fact of its being a rebound from the extremity of depression which had been reached in the beginning of the year. The year just past, however, presents none of these extraordinary incidents. There has been much activity in business and in the money market, as well as on the stock exchange, but it has been for the most part of a quiet and steady kind, and there has been little to attract outside attention. The annals are consequently dull, but the year is the most satisfactory that has been known in trade since 1872.

"*Summing-up of the History.*

"The history may be summed up very shortly. The year opened with trade good and a general feeling of hope and confidence, the result of the great revival at the end of 1879. It appeared, however, very soon that the revival had been accompanied by a certain excess of speculation, and by an advance in the prices of raw materials which could not be maintained. As the year progressed the speculation broke down, and the prices of iron and other raw materials dwindled; this downward turn being apparently assisted by the dissolution of parliament and the general election in March and April, which had the effect of occupying largely the time and thought not alone of leading business men, but of the mass of the nation. This state of things continued through the summer and into the autumn, but after September a new speculative tendency was developed, which has been especially marked on the stock exchange. During the last few months there has indeed been a remarkable steadiness in the prices of leading wholesale commodities, principally of iron and other metals, at a level somewhat above that of the spring and summer, but considerably below the momentarily inflated figures at the beginning of the year. All through, however, notwithstanding these minor ups and downs, the tone has been good, and the volume of business has been much greater than it was in 1879; the increase being shown down to the last, although since September the comparison has been with months of 1879, in which revival had commenced. To mention only a few of the leading statistics of the year, we find that the imports show an increase of 13¼ per cent. as compared with 1879; the exports of British and Irish produce an increase of 16⅜ per cent.; the entries and clearances of shipping (foreign) an increase of 13¾ and 12½ per cent. respectively, and coastwise of 1½ and 2¾ respectively; the railway traffics an increase of from 5 to 7½ per cent.; and the bankers' clearing house returns an increase of over 15 per cent., the increase on the *fourths* of the month being over 10 per cent. The improvement, though very general, has been specially marked in the iron and cotton trades. The production of iron, as will be seen from the detailed information in the present supplement, has increased from about 5,900,000 tons in 1879 to 7,200,000 in 1880, or more than 20 per cent., and latterly a more than proportionate share of this increase has been absorbed in the home consumption, although the revival itself began with an increase of the export demand. In the cotton trade the improvement has been also very signal. The increase in the export of cotton goods to India, compared with 1879, has been over 32 per cent., and the latest reports are, that, great as the export has been, the distribution to consumers in India has been on a large scale, and the markets are not overstocked. The prosperity of these two great trades has led to and stimulated the prosperity of others. There have been other circumstances to add to the improvement, such as the better home harvest of 1880 compared with 1879 (the harvest improvement, however, not having been so great as was at first thought); but the main features of the general trade improvement have been those above stated, viz., the greatly increased production and consumption in the iron and cotton trades. Beyond this the leading characteristic of the year's business seems to have been a great advance in the prices of securities late in the year, principally in securities of an inferior description, coupled with a large issue of new securities. The progress of trade prosperity has induced speculators on the stock exchange to anticipate a large investment of surplus profits in securities, and the result has been a most noticeable inflation of the stock markets. The average advance in securities from the lowest point of 1879, according to a recent article in the *Statist*,* exceeds 17 per cent., and this represents an augmentation of aggregate market values by something like 600 million pounds in the United Kingdom alone. The phenomenon, whatever may be thought of it, and whatever may be the consequences, is one of the most palpable evidences of the prosperity of trade.

"Nor has the year been disturbed by any remarkable events in the money market. There have, in fact, only been two changes in the bank rate of discount during the year, viz., a reduction from 3 to 2½ per cent. in June, and an advance from 2½ to 3 per cent. in December. No facts could testify more eloquently to the quiet of Lombard Street. Business has been good, and the banks have made good profits, as was evident from the reports issued last July, and the reports which have been issued during the present month; but this has not been due in any way to a great increase of business or to the fact of rates being high and the money market excited. The reason is that credit has been good, and there have been no bad debts. To some extent, however, the freedom of the money market from disturbance and from higher rates for money than what have actually prevailed, has been the result of peculiar circumstances, which have been favourable for the moment, though the ultimate effect, as is, perhaps, foreshadowed by the advance in money since the present year commenced, may be different. Money has been easy, because the Bank of France, in its discretion, allowed its stock of gold in the autumn to run down to a point at which, it appears to outsiders, there may be some difficulty in France retaining the possession of a gold standard. But for this unexpected supply towards meeting a great drain of gold to the United States, it would hardly have been possible for the Bank of England to maintain such low rates as 2½ and 3 per cent. throughout the year. As we shall see later on, the whole monetary situation has now become the more interesting in consequence. Still, the low rates were maintained throughout the year, and Lombard Street remained without exciting events.

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* See *Statist*, 11th December, 1880.

"The above brief narrative includes the leading features of the business year. To make the history more complete it would be necessary to go into details which would be out of place in this introductory essay, and which will be found recorded at length in the trade reports, statistical tables, and diagrams in the present supplement. The diagrams may be especially referred to as illustrating more especially the condition of the money market, and the movements of prices. The progress in the prices of iron and other wholesale commodities from an inflated price at the beginning of the year, and from that to a steady price in the autumn, is shown with especial clearness. Avoiding these details, it may be useful to notice, in summing up the history, that there appears to have been no political event, except the general election already noticed, which has had the smallest effect on trade, although there have been events of a kind to have affected trade adversely, or to have had the appearance of affecting it, if the conditions had not been so favourable to prosperity in trade. These events have comprised the Dulcigno affair and the Greek difficulty; the disaster in Afghanistan, necessitating General Roberts's march from Cabul to Candahar; the Basuto war and the revolt of the Transvaal; and, above all, the agrarian crisis in Ireland, which has made the condition of Ireland question the engrossing topic of the year. Looking at these matters, it would be easy to paint the politics of 1880 in gloomy colours, and to infer that trade could hardly be prosperous with the political conditions so adverse. But the great movement of trade appears to have gone on unaffected by these events and conditions. The reason would appear to be that the magnitude of business is such as to minimise the influence of even first-rate political events. To a country like England the Afghan and Cape wars are after all 'little wars'—wars with 'limited liability,' to repeat a phrase I have more than once applied. The disaffection of a certain part of Ireland, again, perhaps a third or a half of the country, is only the disaffection of a small fragment of the United Kingdom, about a *fifteenth* part only; and hence the circumstance of that disaffection, however important in the political sphere, affects the present business position so little that consols in November advanced above par the first time for nearly thirty years. The Eastern troubles, with the risk of war they involve, are regarded more seriously by business men; but here, after all, the chance of a great war arising has been only a contingency, while it is always remembered that, although such wars are always disastrous on their outbreak to the stock exchange, they must be of gigantic and unprecedented magnitude, as compared with anything in Europe since 1815, to affect the course of trade at all sensibly—at any rate when a revival of trade is in full swing. The outbreak of the Franco-German war of 1870 caused a first-class panic on the stock exchange, but the trade of this country was hardly affected, except in a favourable manner.

"The course of trade having been thus uneventful, we may pass on from a mere description of the history to a discussion of a few of the leading economic problems presented by it. We begin with the question of

" *The Causes of the Present Trade Prosperity.*

" In this question we may also include a discussion of the immediate prospect. If we can trace aright the influences which bring about the present state of things, we have some clue to the probable course of events in the immediate future.

" Referring to the introductory essay in the *Statist* annual a year ago, I may point out that the revival which had then commenced was clearly traced to the great contraction of production which had occurred in 1878-79. It was pointed out that production for the moment had become a great deal less than the current consumption; that at a point this failure of supply to meet demand was generally felt; that this felt excess of demand stimulated an increase of production, which was simultaneously aggravated by the disposition of merchants and others to replenish stocks; and that by a law of action and reaction an increase of profitable production in one or two trades stimulated an increase of the like production in other trades, so that production and consumption went on increasing, if not exactly *pari passu*, yet approximately so, the one acting on the other. From this the conclusion was drawn that, in spite of a bad harvest in 1879 and other lions in the path, the year 1880 was likely to be prosperous. We may quote the exact words that were then used:—

" 'All the facts and deductions point to a continuance of the improvement which has begun. The facts—that so many trades are better, that a stimulus is given to production in all directions, that the harvest failure is really not of a kind to affect prejudicially the general movement, as it has not, in fact, prevented a start upwards, and that specially the improvement in India and America continues to affect us most favourably—all point to the one conclusion that the revival of trade is strong and genuine, and must be upheld by the causes which have set it in motion; for how long a period it is impossible to say beforehand, but probably for no inconsiderable time. The orders booked in almost every trade, it is believed, will carry us a great way through the present year. We may also believe, according to past experience, that such a movement once started will go on augmenting, will extend from one trade to another, and will be strengthened by incessant action and reaction. No one in such a matter should be over confident, knowing what a part is played by the unforeseen in human affairs; but the present is a time for hope, and a cheerful feeling is no unimportant factor in producing the good trade that is hoped for. The revival has given confidence, and enriched the leading capitalists and speculators—the people who direct production. Such a stimulus once given will last a long time.

" 'It is objected that the rise of prices is an adverse influence to prosperity; that the working classes have their purchasing power diminished by the rise in tea, sugar, and other articles of general consumption. But to this the answer is, that a rise of prices is the essential part of a trade revival, and in its earlier stages does not prevent a continuance of improvement. The fuller employment appears to compensate, and more than compensate, the consumer for the rise in prices by which production is stimulated. Afterwards, when prices rise still higher, the effect is different, consumption being checked and production rendered unprofitable by a falling tendency in prices; but we are yet a long way from such a period. Prices have risen, but not as yet to a very high level. Apprehensions are also expressed respecting the state of the money market, and the political complications in the east of Europe. But, while fully believing that money is likely to be dearer, especially if trade goes on improving, we do not think the improvement in trade will itself be arrested.'

"What we said a year ago by way of anticipation we may now repeat by way of retrospect. The revival of 1880 is the result of the revival of 1879; one augmentation of trade having led to another, and all the alleged obstacles to improvement being either no obstacles at all, or quite insignificant in their operation, compared with the forces at work towards improvement. The year 1880 is, in fact, a new exemplification of the doctrine that because trade begins to improve it will tend to go on improving. The only circumstance more in favour of the past year than 1879 has been the better home harvest; but the diminished influence of the home harvest for good or for evil we explained a year ago, and too much ought not to be made of the alteration of this one condition. It is a contribution to the general account of prosperity, and nothing more. When a great revival like that of 1879 can occur, not only without a good harvest, but after one of the worst on record, which also followed a succession of bad harvests, we may consider it demonstrated that the prosperity of the United Kingdom is no longer bound up, as it was, with the home harvest. The important condition is that the prices of the necessaries of life and of raw materials should be cheap, and this condition may be the result of abundant harvests abroad, even when there are deficient harvests at home.

"Looking forward to the course of business in the year now current, we may also repeat once more the language we used a year ago in anticipation of 1880. Just because business has improved and has gone on augmenting all through the year, we may expect the augmentation, 'barring accidents,' to continue and increase. The stone once set in motion keeps rolling, gathering new force, until some accident happens, such as is sure, sooner or later, to happen when inflation sets in. We should now anticipate, moreover, that the momentum will be greater than it was a year ago. The profits of trade have been greater than they were at the end of 1879; the tone of business circulars, especially in the iron trades, is stronger and more cheerful; business has advanced so much that already there are many signs of a rise in wages and prices, of which condition one or two strikes are symptoms, and not more than symptoms. The one doubtful point, especially in the iron trade, has lately been whether production was not getting to be considerably in excess of consumption; but the better opinion it will be seen from the trade circulars, is decidedly to the effect that, large as the production now is, consumption is fast overtaking it. With good credit, and an increasing disposition to invest in fixed works, the demand for iron and other instrumental articles appears, in fact, likely to increase almost indefinitely. All this means a great increase of general purchasing power throughout the world, by which almost every trade will benefit.

"The alleged obstacles to improvement, which we noticed a year ago, though they may still be alleged, are also of as little weight as they were then. The rise in wages and prices, until it has gone much farther than it has yet done, does not really check trade, but rather promotes trade. The dearness of money to be apprehended does not seem likely during the present year, at least, to check any sound enterprise, while, *mutatis mutandis*, we may repeat what we have said as to the little influence of political events on the past year's trade. Accidents may happen to disturb any forecast, but no little confidence may be felt in the immediate future of trade. One significant sign of improvement, it may be noticed, is now present, whose absence had to be remarked a year ago. We refer to the improvement of the revenue, which was the subject of comment in the Queen's speech. The increase is not great, but it is a sign among others that improved trade is at length telling on the purchasing power of the masses. This sign has been long in showing itself, as it always is, but its presence indicates very surely the probability of an increased momentum in the current of trade.

"The second economic problem of the moment which we propose to discuss is

"*The Peculiar Condition of the Money Market.*

"The money market invariably becomes interesting after a trade revival has gone a certain length. It is the custom to say that good trade leads to a good demand for money, and so makes money dear; but the influence of good trade on the money market appears to be much more complicated and indirect, though the effect in the end is what is stated—viz., to make money dear. As we look at the matter, the influence of good trade is felt, not so much in an increased demand for loans in the short loan market, which makes money dear, as in a diminution of the reserves of the banks—that is, of the supply of money. The effect is the same, but the change in relation is produced not so much by the increased demand as by the diminished supply. The exact process we believe to be this: In dull times, when credit is bad, business contracted, and prices low, the general demand for currency in a given population falls off. The currency not required flows into the coffers of the banks which keep the reserve, and if the money in use is an automatic metallic currency, like that of this country, identical in value with the metal of which it is composed, or if free minting by the public is allowed, the surplus in the banks is augmented by the annual production from the mines. All this tends to constitute a surplus which makes money in the short loan market so cheap as to be a drug. There may be a very small reflux of currency into the banks, and possibly there may be even a slight demand for currency all through, owing to the *steady* increase of population and wealth, which underlies the ebbing and flowing of credit, and prices, but the effect of an augmenting surplus is produced if the annual production of the mines exceeds the currency demands. But trade improves, and then the surplus in the banks begins to disperse, simply through the increased need for currency in proportion to the same population which the rise of wages and prices incidental to good trade produces. All the while, no doubt, the trade demand for money is increasing. An increase of prices means an increase of the amount in bills and advances which cover the same things, while the improvement of credit means an increase of stocks held with borrowed money. But the trade demand, nevertheless, does not directly tell on the banks, as their deposits increase, taking one bank with another, *pari passu* with the loans, and each bank, advancing more, thinks it has more to lend. What tells upon the banker in the end is the actual dispersal of the surplus cash which had accumulated in the dull time, and this is effected as the direct result of the revival of trade. The increased trade demand might have gone on a long time without his feeling it. Perhaps the only way in which he does feel it is through the increase of his liabilities affecting the proportion of his reserve; he begins to think it needful to keep a larger amount than he would otherwise do. Still, it is the reserve always through which the banker is affected by a revival of trade, and it is not by any felt change in the increased demand for accommodation that he is moved. The ultimate effect, as we have said, is invariable. Every revival of trade leads to changes which include an insufficiency of the reserves in the banks to meet all the demands on them, in other words, to dearness of money; which continues with ups and downs, until trade is again contracted, prices and wages fall, and surplus cash once more accumulates in the banks.

"The results are somewhat concealed in the English system by the circumstance of there being only one reserve—that of the Bank of England. The other banks often cannot see why the bank should go up and down when they feel no change, or little change, in their own deposits or the demand for loans. But the economy effected by the one reserve system does not alter the principle we are stating. The action of the Bank of England in raising its rates would be more effective than it is if it compelled all the institutions depending on it to maintain an adequate balance. It is the power of the banks to employ their balances without regard to the consequences, because they can use the reserve of the Bank of England by the instrumentality of the bill-brokers, which creates the confused distinction in the English money market between the dearness of money due to a bullion scarcity, and the dearness due to a trade demand. In reality, it is always a scarcity of surplus cash, a bullion scarcity, which causes dear money in the short loan market.

"The point of interest in a trade revival, as regards the money market, is always therefore the point at which currency demands begin to increase, and when it becomes interesting to discuss the way in which the ordinary demands may be aggravated or neutralised by any extraordinary demand or supply. The tendency of trade is to improve, and of prices and wages to advance, indefinitely, so that the point must be reached when these currency demands will exceed the annual produce of the mines, and the reserves of the banks be drawn upon, or when the proportion of the reserve, through the swelling of nominal advances and liabilities, will fall far below what banks think proper to keep. There is no possibility of preventing such a consummation, except a general moderation in the hour of prosperity of which no business community has yet shown itself capable. But, of course, the issue to which things are tending may be accelerated or retarded by extraordinary causes, which should be watched with care, then, as soon as the currency demands begin. The present position is that these demands have begun at a singularly early stage of the trade revival, or rather that they are only beginning in this country when the surplus cash has been taken away, and more than taken away, by an extraordinary demand from the United States, which appears, when analysed, to be only the net result of the ordinary demands for currency resulting from the improved trade there. The demand for the United States is an extraordinary one, as far as our money market is concerned; but in one sense, and, looking at the money markets of the gold using countries as a whole, it is only an ordinary demand of the kind we have described. Large as it is—and the United States must have absorbed 42 million pounds of gold in two years (12 millions of their own production, and 30 millions from Europe)—it is still a mere currency demand, such as may always be expected after a trade revival. What we should say, then, of the present condition of the money market is that the point at which the reserves of banks are threatened is *already* being reached, and the interest of the money market, which attends that state of things, has already begun.

"We are inclined to think that the movements before long will be incessant and violent. As already glanced at, the money market has only been so easy as it has been during the past year through an accident. The bank of France in the early autumn permitted its stock of gold bullion to fall from 30 million pounds—a small enough amount—to 22 million pounds; and this use of its reserve has sufficed to prevent a squeeze for money in Western Europe, which the American demand would otherwise have produced. But the result is that no bank in Europe has now a great reserve. The gold bullion—

	£
In the Bank of England is	24,000,000
" France is	22,000,000
Total	46,000,000

While the stock in the Imperial Bank of Germany can be little over 12 million pounds, or thereabouts, though it is not possible to state the precise amount, owing to the Bank of Germany not distinguishing between its gold and silver. The amounts are very small for the banking systems of Western Europe. The annual supply of gold from the mines is also small—certainly not sufficient for one year's consumption of France, England, Germany, and the United States, not to speak of other gold using countries, when trade is good. The total does not exceed 16 million pounds to 18 million pounds, or less than the annual consumption of the United States alone in either of the two past years. It may be assumed that the annual consumption of the United States will be less in the next year or two, but even if the United States only consumes its own production, or 6 million pounds to 8 million pounds annually, the difference of 8 million pounds to 10 million pounds will be quite insufficient for the annual consumption of England, France, and Germany, let alone the replenishment of the stock of the Bank of France. England alone, according to past experience, may be expected to consume from 5 million pounds to 10 million pounds annually, if trade improves. Combining all these circumstances together, what we should now expect will be a tendency to great firmness in the money market each spring and autumn, culminating in a serious stringency as soon as rising wages and prices determine a large efflux of coin and notes for the country circulation. A large efflux must take place sooner or later, if trade goes on as it is now doing. Already it appears that the reflux of what went out last autumn is smaller than it has been for some years. The period of a real stringency in the money market may thus begin in the present year. Last autumn undoubtedly there was a very narrow escape. The only hope of relief appears to be in the possibility of some of the gold drained to the United States returning if rates on this side should advance. But the magnitude of the United States' currency demands has been so immense as to defy all reckoning of what more will go, or whether any will come back.

" In any case it is clear that the bullion movements must now be watched as closely by those interested in money as were similar movements in 1871-74, when the German indemnity was being paid and the German gold currency introduced. The general effect on trade may, however, be as beneficial as these currency demands probably were. They will tend to arrest the indefinite expansion of trade and the indefinite inflation of the markets for securities at a point when less harm has been done than if the expansion and inflation had gone to the utmost limit they have power to reach. The crisis of 1873 would probably have been worse than it was if it had been delayed a year or two later, and had come simultaneously with the foreign loan collapses and the Collie failures. No great harm will be done, then, if the bullion scarcity now threatened produces a similar monetary stringency before its time. But the possibility of stringency at almost any moment must now be recognised.

" The next problem of the moment to be discussed appears to be

" *The Position of the Stock Markets.*

" Every great revival of trade is accompanied by a rise of prices on the stock exchange, which is to be distinguished in various ways from a gradual improvement which is almost always going on in good times and bad. This last gradual improvement is due to the competition of surplus money or capital for investment in certain forms, which surplus can only find a sufficient outlet when securities in the same forms are created in adequate quantity—a condition which is only occasionally present. Usually it is a great war or a rush towards investment in fixed works yielding a stable return to the investor, and where, as in the case of railways, various forms of guarantee or preference to particular parts of the capital required can be given, by which the permanent tendency to a rise in the price of securities is momentarily overcome or checked. But the rise which comes along with a trade revival, though while it lasts it goes along with the steady and gradual improvement, is primarily due to other causes. It is due to the hope of an unusual increase in the quantity of surplus money seeking investment, which will accelerate the rise in securities generally until a large new creation occurs, and in part to the presence of such surplus money on the stock markets. The hope being formed, and some purchases for investment, perhaps, beginning, speculators of different kinds make large purchases with borrowed money, to await the purchases for investment which they believe will be made later on. And one rise of this kind leads to another. The earlier speculators making money, because they are able to sell to speculators who come into the field after them, look about for a new operation, and 'go into' some stock or group of stocks which has been neglected, or which has advanced least, and produce a great rise there, till, in the end, almost all stocks stand at an inflated level, in consequence of the mass of them which has been purchased, and is held, with borrowed money. In all this movement the presence of surplus money seeking investment assists. The holders may not choose to invest themselves, but their funds are deposited in banks, and are ready to be used by speculators. Up to a certain point also what would seem an obvious hindrance to the rise does not have that effect, that is the sales by actual holders to the speculators who purchase with borrowed money. Such sales it might be thought would prevent a rise, just because they must equal the purchases. But the sales apparently are withheld until the stocks are 'bid up' to a point, the holders discounting the eagerness of speculators to operate, and then they fail to produce a fall, or produce a less fall than might be expected, because the money realised is in turn deposited in banks, so that the speculator can borrow it, or it is directly lent by the capitalist seller to the speculator. In the end, when the masses of speculative operators are found to be 'weak,' the market becomes liable to panics or sharp reactions, of which there has been an illustration during the last few weeks; but with all the ups and downs, there is nevertheless a rise on balance in such a time as compared with a time when trade is bad.

"The time comes, after several years of inflation, when losses occur in business, and an effort is made to realise securities, from which there results a fall of an analogous kind to the rise which is now occurring; but at present we are far removed, apparently, from such a time—we have only to deal with the phenomena of progressive inflation.

"It would seem that the advance which has occurred during the last few months, and which is undoubtedly due to the speculative operations described, has been one of the most remarkable on record. As already referred to, the table in the *Statist* of 11th December last exhibits an average rise up to that date of upwards of 17 per cent. on a vast mass of securities, the selling values of these securities in December being 1,847 million pounds, as compared with 1,575 million pounds in the summer of 1879; so that the *amount* of the increase is 272 million pounds. Applying this to the mass of securities dealt in in the United Kingdom, the increase of selling value could, probably, not be put at less than 600 million pounds. Making all allowance for the portion of this rise due to the permanent tendency of securities to improve, which has been described, we have still an enormous change brought about mainly by speculative operations. Such a change in the conditions of business cannot but have many direct and indirect consequences of an interesting kind.

"One of the effects most commonly imagined may, however, be disregarded. It is supposed that the rise in securities, and the demand for loans accompanying it, explain directly in some way the dearness of money; but what we have already said in regard to the money market, as to the amount of deposits in the banks increasing *pari passu* with the loans, applies especially to securities. For every security sold there is an equivalent quantity of 'money' *somewhere*, and as a rise in money can only be due to a demand for loans exceeding the supply, there is clearly nothing in these loans wherewith to purchase securities to produce such a rise. They cause no relative scarcity of money, because the loans themselves create an equivalent supply. No doubt the demand for loans on the stock exchange is one item in the general demand when money becomes dear, but it will usually be found, as we have seen in the present case, that the scarcity of money itself is produced by external influences, such as the drain of gold to America. Stock exchange borrowers suffer with others by the abstraction of funds from the loan market, but their own operations do not directly contribute to the scarcity.

"It would seem, however, that although the borrowing on securities does not directly raise the value of money, it helps indirectly to that result by the actual fact of a rise, with its accompaniment of a large creation of new securities. The rise is a new cause of stir in business. There is a notion about that securities are held exclusively by investors living on the income from them; but this is not an accurate notion. A vast mass is held by people actually in business, or by half-retired capitalists who have other income, and who are always ready for an operation. A rise in securities is tempting to all this class, by furnishing the funds for new operations, either in trade or in the undertaking of new schemes which eventually lead to the creation of new securities. There is one class of business men, indeed, who are specially liable to be stimulated by a rise in securities—the class of great contractors. The operations of contractors—Mr. Brassey, if I remember rightly, is the authority for the statement—extend over long periods, and in the case of railways or similar works in foreign countries, involve the acceptance of bonds or shares in payment, which the capitalist contractor must have time to realise. A rise like that which has recently taken place, therefore, is a windfall to this class. They are enabled to realise lumps of securities which may have hung on their hands for a long time, and their capital again becomes mobile. But all this stir and creation of new securities, though good for trade, adds to the forces of dispersion acting on the cash reserves of the banks, and so tends to make money dear.

"The effect of a rise in securities in making money dear is sometimes described in another way. It enables foreigners to sell international securities on our markets and take the proceeds home; but this mode of explanation would hardly apply to the last eighteen months, in which the advance has gone on step by step on every stock exchange in the world, and in which, with the exception of New York, all the exchanges have been in favour of London. The first explanation is both in our view more general and more accurate. It is only at times that a rise in securities in one market brings into operation the special dispersive force of sales by foreigners, and helps to turn the exchanges against that market.

"The most important effect of the rise in securities is, however, that which it produces on investors and those various classes—for they are not all one class—directly connected with bringing about the rise. To all appearance the effect is purely one of demoralisation, with very little compensation. Every holder is made to think he is richer than before, though there may be no difference, or little difference, in the return of his investment; investors are sorely tempted to become operators; people who have 'operated' in a small way are induced to believe, by the almost constant rise, that they can go on adding indefinitely to their capital; and so the mania for speculation is excited, with the usual calamitous results. Above all, the rise, by diminishing the apparent yield on investments, tends to make investors discontented with the rate of interest they receive, and so paves the way for the gambling promoter. Disgusted by the return on good securities, investors go more and more into those of an inferior class, causing them, with the aid of speculative operations, to rise disproportionately, till in the end many quiet people become unable to realise the distinctions between good and inferior securities. This is the time for the promoter. There are many new schemes which ought to succeed, but in the crowd the fraudulent, as well as the genuine, get through. The effect of the rise on the speculative class is equally injurious. Speculation becomes more gigantic and aimless, and the gambling spirit developed is not always confined to the stock exchange.

"Almost the only class which profits by the new condition of the stock markets is the capitalist who keeps his wits about him, and who lends money to the weak speculators with a margin or other security. This class obtains a good rate for its money when the markets are inflated. Stock exchange borrowers have not the entire short loan market open to them. The only capitalists they can go to are capitalists who are either members of the stock exchange or closely connected with it, and who either lend their own money or have credit to borrow from the banks—the amount lent by the banks, however, being seldom at any time very large, and not varying so much in amount as is sometimes supposed, as the maximum limit of what can be lent on the stock exchange is always much the same. Abroad—in Paris for instance—the connection of the banks and other credit institutions with the bourse is direct and extensive; but in London what the banks lend is only a part of the stock exchange fund, which is fed from many other sources, and largely consists of the capital of members and their clients. Hence it is that when money becomes dear, the stock exchange borrower suffers most. He has only a limited access to capital; banks are indisposed to increase their maximum, even if they do not contract their stock exchange advances; and so the weak speculator has to pay whatever interest is asked by the few with whom he can deal; but the capitalist from whom he borrows has a most profitable investment for his money.

"The condition of the stock markets is in these ways an important factor in the present economic situation. It is connected with and indicates the revival of trade; it helps to make money dear by strengthening and adding to the dispersive forces acting on the money market; it stimulates trade; and it also helps powerfully to produce the demoralisation of a period of inflation by making investors discontented, and accustoming them to dealing or operating, instead of investing, and by stimulating speculators and promoters. We are only at the beginning of a period of inflation, barely eighteen months having passed since the depression was at the lowest; but seldom has the progress towards inflation been so rapid as it has lately been. We must be prepared for great movements and great excitement on the stock exchange during the next few years, of which the commotion of the last fortnight is only a forerunner and a sign.

" *Conclusion.*

"We may sum up very briefly the conclusions of this long review. The year 1880 has been very prosperous as the first after a long period of depression, during which the employment of the industrial machine has increased without a sensible alteration of the condition of cheapness so essential to the profit of the capitalist. To all appearance the conditions of prosperous trade remain, and the year 1881, according to former experience, should be even more prosperous than its predecessor. At the same time, all business is likely to be affected by the dearness of money consequent on the scarcity of bullion, but not, it may be hoped, unfavourably. Dear money, as a check to extravagant inflation, ought rather to be welcomed than otherwise. The great advance on the stock markets is also a sign of the rapidity of the advance which has been made towards a period of inflation. While it stimulates trade and helps to make money dear, it has a potent demoralising influence which will now begin to be widely felt. The year 1881 is likely enough to be less dull than the year which has now been reviewed."

The contents of the Financial and Commercial History of 1880, from which the foregoing introduction is taken, are indicated below, viz.:—

The Foreign Trade of 1880—*United States Trade of* 1880—*French Trade Returns.*

Charts.

Clearing House Returns—Bank of England—New York Exchange Rate on London—Bank of France—Rate of Exchange between London, Paris, and Berlin—Italian Five per Cent. Funds and Exchange Rate—Indian Exchange Rate—Price of Silver—Consols and Indian Stock—Colonial and Government Loans—French, Austrian, and Russian Funds—Foreign Stocks—Egyptian and Turkish Loans—South Austrian Railway—British Railways—Canadian and American Railways—Banks.

Extracts from Trade Circulars.

(*Illustrated with Diagrams showing the Course of Prices.*)

The Iron Trade—Coal—Copper—Tin—Tin-plates—Lead, &c.—Engineering Trade—Shipbuilding—Freights—The Cotton Trade—Wool—Silk—Linen, Jute, Flax, &c.—Hides and Leather—Wheat Trade—Rice—Sugar—Tea—Coffee—Cocoa—Wines and Spirits—Chemicals—Tallow—Petroleum—Indigo—Wood—Bullion—Silver.

Index to Tables.

BANK RETURNS—
Bank of England—Bank of France—Bank of Germany—Bank of Austria—Bank of the Netherlands—Associated New York Banks—Savings Banks.

CLEARING HOUSE RETURNS—
London Bankers' Clearing Returns—Settlings on 4th of the Month.

Stock Exchange Settling Days—Foreign Market Rates of Discount—Exchanges and Bullion—Public Revenues—Stock Exchange Securities—Traffic Returns—Pauperism—Prices of Wholesale Commodities—Allotments of Indian Council Bills in 1879—Statistics of Failures.

II.—*The Fires in London during the Year* 1880, *and the Metropolitan Fire Brigade.*

THE following particulars are taken from Captain Shaw's Report for 1880, to the Metropolitan Board of Works, in continuation of similar notices for previous years:—

"The number of calls for fires, or supposed fires, received during the year has been 2,194. Of these 206 were false alarms, 117 proved to be only chimney alarms, and 1,871 were calls for fires, of which 162 resulted in serious damage, and 1,709 in slight damage.

"These figures refer only to the regular calls for fires, or supposed fires, involving the turning out of firemen, fire engines, fire escapes, horses, and coachmen; they do not include trifling damages by fires which were not sufficiently important to require the attendance of firemen; neither do they include the ordinary calls for chimneys on fire, which are separately accounted for further on.

"The fires of 1880, compared with those of 1879, show an increase of 153; and compared with the average of the last ten years, an increase of 224.

"The proportion of serious to slight losses—162 to 1,709—is decidedly favourable; and, although there has been a very large increase in the total number of fires, the amount of property destroyed compares most advantageously with the losses of former years.

"The following table gives it both in actual numbers and percentages:—

Year.	Number of Fires.			Percentages.		
	Serious.	Slight.	Total.	Serious.	Slight.	Total.
1866........	326	1,012	1,338	25	75	100
'67........	245	1,152	1,397	18	82	100
'68........	235	1,433	1,668	14	86	100
'69........	199	1,373	1,572	13	87	100
'70........	276	1,670	1,946	14	86	100
'71........	207	1,635	1,842	11	89	100
'72........	120	1,374	1,494	8	92	100
'73........	166	1,382	1,548	11	89	100
'74........	154	1,419	1,573	10	90	100
'75........	163	1,366	1,529	11	89	100
'76........	166	1,466	1,632	11	89	100
'77........	159	1,374	1,533	10	90	100
'78........	170	1,489	1,659	10	90	100
'79........	159	1,559	1,718	9	91	100
'80........	162	1,709	1,871	9	91	100

"The number of fires in the metropolis in which life has been seriously endangered during the year 1880 has been 99; and the number of those in which life has been lost has been 26.

"The number of persons seriously endangered by fire has been 160, of whom 127 were saved, and 33 lost their lives. Of the 33 lost, 14 were taken out alive, but died afterwards in hospitals or elsewhere, and 19 were suffocated or burned to death.

"The number of calls for chimneys has been 4,292. Of these 1,547 proved to be false alarms, and 2,745 were for chimneys on fire. In these cases there was no attendance of engines, but only of firemen with handpumps.

"The number of journeys made by the fire engines of the 52 land stations has been 25,754, and the total distance run has been 58,377 miles.

"The quantity of water used for extinguishing fires in the metropolis during the year has been 21,072,739 gallons—in round numbers a little more than 21 million gallons, or about 94,075 tons. Of this quantity, about 48,157 tons, or a little more than half of the whole, were taken from the river, canals, and docks, and the remainder from the street pipes.

"During the year there have been 4 cases of short supply of water, 34 of late attendance of turncocks, and 6 of no attendance, making altogether 44 cases in which the water arrangements were unsatisfactory.

"The strength of the brigade at present is as follows:—

52	land fire engine stations.
5	moveable land stations.
117	fire escape stations.
4	floating ,,
3	large land steam fire engines.
35	small ,,
73	six-inch manual fire engines.
37	under six-inch manual fire engines.
135	fire escapes and long scaling ladders.
3	floating steam fire engines.
1	steam tug.
3	barges.
17	hose carts.
15	vans.
2	trollies.
58	telegraph lines.
170	miles of telegraph lines.
6	fire alarm circuits, with forty call points.
485	firemen, including chief officer, superintendents, and all ranks.

"The number of firemen employed on the several watches kept up throughout the metropolis is at present 97 by day and 212 by night, making a total of 309 in every twenty-four hours; the remaining men are available for general work at fires.

"Our list of wounds and other injuries for 1880 is, unfortunately, very large, but, considering the energy and fearlessness which the men display in the execution of their duties, the number of mishaps is not surprising; and, so long as this spirit continues to animate them, the many and various casualties which the nature of their work obliges them to incur, are not likely to diminish. The risks to which the officers and men of the Metropolitan Fire Brigade are liable are undoubtedly greater and of more frequent occurrence than those of any other public body.

"There have been during the year 333 cases of ordinary illness and 78 injuries, making a total of 411 cases, of which many were very serious and three resulted in death.

"The system of moveable stations, recently established, has been of considerable advantage, and when carried into operation on a larger scale will constitute a decided improvement in the brigade, as affording an efficient and comparatively inexpensive means of protecting the crowded parts of the metropolis, where, owing to the great difficulty of obtaining sites, it is impossible to build permanent fire engine stations.

"A very important improvement has been effected this year by the establishment of 6 circuits of fire alarms with an aggregate of 40 call points, which very considerably reduce the distance to be run by persons giving alarms of fire, and consequently the time of our getting information. Although this improved mode of communication has not been established more than a few months, we have already received by means of it no less than 44 good calls. Unfortunately, however, we have also received 33 false alarms, many of which were without doubt wilfully raised. Thus it will be seen that the great advantage of the system has not been obtained without harassing the men and casting a doubt on the value of all messages received by these instruments. This has been the experience of all places which have adopted the system of street fire alarms; but I had great hope that in such a city as London we should have been free from an annoyance which, if persevered in, must eventually force us to discontinue what ought to be a very great improvement. I am still most unwilling to abandon this hope, and I think I may say, though not with any great confidence, that I begin to observe symptoms of a better state of things with regard to these useful machines for the future. There has been only one instance in which any one has been actually detected in tampering with a fire alarm. In that case the magistrate sentenced the offender to fourteen days' hard labour without the option of a fine, and this has had a most beneficial effect. The police have been most vigilant and active in protecting the fire alarms; but a policeman cannot be set apart to watch every post, and the future of these street fire alarms must eventually depend to a very great extent on the inhabitants of London, who can render invaluable assistance in the way of protecting the brigade from being imposed upon by the tricks of foolish and evil disposed persons, who have not enough intelligence to appreciate the gravity of the offence, with its possible effect of necessitating the abolition of a scheme, as yet only imperfectly applied, which promises to secure a more efficient and more extended means of protecting the metropolis from fire.

"This being my twentieth annual report, I may call attention to some points of interest and curiosity in connection with the statistics of the establishment, and I believe that the figures which I am about to present will not be found without significance for those who study the subject.

"Taking the fires during the past year by months, the greatest number has been in May (namely 219), and the smallest in February (104). Taking them by weeks, the greatest number has been in the 20th week (63), and the smallest in the 24th week (18). Taking them by days, the greatest number has been on Saturdays (289), and the smallest on Tuesdays (253). Taking them by hours, the largest number has been between 9 and 10 P.M. (182), and the smallest between 7 and 8 A.M. (31). The figures for the months, weeks, and days for the last twenty years, although on the whole not varying materially, have at certain periods undergone considerable fluctuations, but those for the hours are quite constant, the largest number being between 9 and 10 o'clock at night, and the smallest between 7 and 8 o'clock in the morning. After 6 in the morning fires increase slowly and irregularly until about 5 in the afternoon, and between 5 and 10 very rapidly, attaining their maximum at the latter hour. After 10 at night they diminish rapidly and regularly until about 6 in the morning, when, as already said, they are at their minimum."

From the tables appended to the report the following particulars are obtained :—

(*a*) The fires classified according to occupations, arranged in the order of frequency of occurrence; to which are added, for the purpose of comparison, the corresponding figures for the three previous years :—

Number.	Occupations.	Number of Fires.			
		1880.	1879.	1878.	1877.
1	Private houses	342	399	358	321
2	Lodgings	247	172	203	195
3	Victuallers	53	58	60	56
4	Boot and shoe makers	49	24	21	17
5	Oil and colourmen	40	29	28	25
6	Grocers	39	20	28	29
7	Drapers	35	30	29	25
8	Builders	34	24	14	23
9	Tailors, clothiers, and outfitters	33	25	30	23
10	Coffee houses	31	32	25	21
11	Farming stock	31	11	9	22
12	Cabinet makers	27	30	27	30
13	Under repairs and building	24	23	36	23
14	Booksellers, binders and stationers	23	18	15	11
15	Chandlers	23	13	10	10
16	Refreshment rooms	22	10	15	14
17	Bakers	21	15	11	20
18	Hotels and club houses	18	11	14	13
19	Tobacconists	17	27	22	15
20	Greengrocers and fruiterers	16	25	15	13
21	Offices	16	17	9	16
22	Carpenters, &c. (not cabinet makers)	15	17	7	6
23	Confectioners	15	12	15	7
24	Printers	15	11	17	16
25	Beershop keepers	15	10	13	8
26	Wine and spirit merchants	15	—	—	—
27	Furniture makers and dealers	14	12	11	5
28	Unoccupied	14	10	10	14
29	Corn dealers	13	—	—	—
30	Stables	12	23	19	21
31	Warehouses	12	—	—	—
32	Coal and coke merchants	11	12	5	9
33	Engineers and machinists	11	12	9	4
34	Provision merchants	11	—	—	—
35	Railways	10	15	7	6
36	Furriers and skinners	10	10	10	5
37	Contractors	10	—	—	—
38	Hatters	10	—	—	—
39	Laundries	10	—	—	—
		1,364	—	—	—
	Remainder, varying from 9 to 1	507	—	—	—
		1,871	—	—	—

(*b*) A list of the fires classified under the causes to which they have been assigned, and arranged in the order of frequency of occurrence:—

Causes.	Number of Fires.
1. Unknown	484
2. Lamps (not gas) and lights (thrown down)	292
3. Sparks from fires, &c.	214
4. Gas (in various ways)	165
5. Defective, or improperly set—flues, ovens, furnaces, boilers, stoves, &c.	158
6. Candles	131
7. Overheating of—flues, ovens, furnaces, boilers, stoves, &c.	90
8. Hot ashes	55
9. Children playing with fire, matches, &c.	49
10. Foul flues	36
11. Smoking tobacco	35
12. Lucifer matches	32
13. Airing linen and drying stoves	31
14. Boiling over, or upsetting of fat, pitch, &c.	25
15. Spirits, or vapour of spirits, in contact with flame	14
16. Spontaneous ignition	10
17. Lime slaking by rain and otherwise	10
18. Doubtful	8
19. Fireworks	4
20. Chemicals explosion	3
Miscellaneous, varying from 3 to 1	25
Total	1,871

(*c*) The following table giving the totals of the fires for each day of the week for the last ten years, shows on the average that the largest number of fires occur on Saturday and the smallest number on Monday. The annual average number of fires for the last ten years is 1,639:—

Years.	Sunday.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.	Total.
1871....	286	202	247	302	271	258	276	1,842
'72....	199	206	213	207	220	220	229	1,494
'73....	202	209	237	199	230	243	228	1,548
'74....	222	228	228	195	240	231	229	1,573
'75....	200	203	231	227	236	209	223	1,529
'76....	260	218	226	235	242	221	230	1,632
'77....	192	218	212	224	243	216	228	1,533
'78....	260	191	271	234	214	236	253	1,659
'79....	235	212	231	257	264	251	268	1,718
'80....	288	262	253	259	254	266	289	1,871
Total...	2,344	2,149	2,349	2,339	2,414	2,351	2,453	16,399

III.—*German Literature of* 1879 *and* 1880.

The following is taken from the *Publishers' Circular* of 15th February, 1881:—

"Systematic view of the literary productions of the German bookselling trade in 1879 and 1880, extracted from the *Börsenblatt:*—

		1879.	1880.
1.	Collections or sets of works—literary history, bibliography	278	377
2.	Divinity	1,304	1,390
3.	Law, politics, statistics, trade	1,683	1,557
4.	Therapeutics, veterinary	732	790
5.	Natural history, chemistry, pharmacy	841	787
6.	Philosophy	139	125
7*a*.	Education, German school-books, physical education	1,741	1,950
7*b*.	Juvenile books	434	496
8.	The classics and oriental languages, antiquities, mythology	481	533
9.	Modern languages, old German	485	506
10.	History, biography, memoirs, letters	680	752
11.	Geography and travel	306	356
12.	Mathematics and astronomy	158	201
13.	War, hippology	337	353
14.	Mercantile science, technology	577	583
15.	Machinery, railways, mining, nautical	384	403
16.	Hunting and forestry	103	112
17.	Domestic economy, agriculture, gardening	421	433
18.	Belles lettres, novels, poems, drama, &c.	1,170	1,209
19.	Fine arts—painting, music, &c.; shorthand	584	627
20.	Popular literature, almanacks	642	657
21.	Freemasonry	21	20
22.	Miscellaneous	378	423
23.	Maps	300	301
	Total	14,179	14,941

IV.—*English Literature in* 1880.

The following particulars are taken from the *Publishers' Circular* of 31st December, 1880, in continuation of a series of similar extracts for previous years:—

"Numerically the publications of 1880 are exceeded by those of 1879, although the difference is not great—less than 150. Of course anticipation would naturally point to an increase in the number of volumes issued from the press in some such ratio as we find the population of this country advancing year by year to a higher figure; but the commercial depression of these last times no doubt has had its influence in checking literary production, or at all events the printing of that which the brain has produced. It is something, perhaps, under the circumstances, that the check has not been found more serious.

"We do not know that a comparison of the two years' tables suggests any further remark, except that January is always liable to seem rather capricious in its show of figures. This is accounted for by the few days more or less by which at the end of the year the account is necessarily contracted, in order to get the statement ready to show in print as the actual year closes.

Analytical Table of Books Published in 1880.

Subjects.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total of Books on each Subject for the Year	
Theology, sermons, biblical, &c.	*62	29	42	70	96	56	40	42	40	67	93	71	708	
	†16	19	20	33	35	26	15	4	22	15	30	32	267	
													—	975
Educational, classical, and philological	*47	30	48	29	54	31	36	49	37	60	40	46	507	
	†10	8	13	17	16	13	12	9	9	20	24	17	168	
													—	675
Juvenile works and tales	*41	30	19	20	15	26	15	17	25	95	148	113	564	
	† 6	6	16	15	15	12	6	10	5	22	26	16	155	
													—	719
Novels, tales, and other fiction	*20	19	25	31	35	44	28	29	28	53	34	34	380	
	†10	20	23	28	27	16	10	16	16	14	9	11	200	
													—	580
Law, jurisprudence, &c.	* 7	8	5	12	11	13	6	1	8	7	3	6	87	
	† 3	4	4	5	8	6	3	5	4	1	7	8	58	
													—	145
Political and social economy, trade and commerce	*16	13	26	28	33	20	13	15	6	7	15	12	204	
	† 2	1	3	10	1	2	1	—	—	1	1	—	22	
													—	226
Arts, science, and illustrated works	*28	28	34	18	43	26	25	23	22	47	27	41	362	
	† 4	9	10	3	13	9	13	8	11	14	9	14	117	
													—	479
Voyages, travels, and geographical research................	*10	7	19	17	21	17	11	24	10	25	23	27	211	
	†—	2	3	3	9	15	7	6	7	2	8	12	74	
													—	285
History, biography, &c.	*18	22	14	21	29	19	23	20	14	36	34	36	286	
	† 6	5	8	6	11	10	2	—	6	9	8	6	77	
													—	363
Poetry and the drama	*26	10	9	13	12	8	11	4	7	11	8	13	132	
	† 3	4	4	6	1	5	4	—	7	7	4	10	55	
													—	187
Year books and serials in volumes	*61	33	22	17	17	24	15	15	12	20	40	77	353	
	†—	—	—	—	—	—	—	—	—	—	—	—	—	
													—	353
Medicine, surgery, &c.	*17	12	5	17	24	6	13	10	8	16	12	8	148	
	† 5	2	4	3	7	6	2	4	8	1	6	6	54	
													—	202
Belles lettres, essays, monographs, &c.	* 6	6	6	5	11	6	4	5	5	6	9	11	80	
	† 9	3	8	2	2	5	8	7	9	17	7	9	86	
													—	166
Miscellaneous, including pamphlets, not sermons............	*26	14	16	25	29	25	24	14	15	28	29	26	271	
	†—	6	6	7	14	7	8	7	8	6	4	9	82	
													—	353
	459	350	412	461	599	453	355	344	349	607	658	671		
														5,708

* New books. † New editions.

The analytical table is divided into fourteen classes; also new books and new editions:—

Divisions.	1879.		1880.	
	New Books.	New Editions.	New Books.	New Editions.
Theology, sermons, biblical, &c.	775	311	708	267
Educational, classical, and philological	613	215	507	168
Juvenile works and tales	153	61	564	155
Novels, tales, and other fiction	607	406	380	200
Law, jurisprudence, &c.	102	55	87	58
Political and social economy, trade and commerce	99	22	204	22
Arts, sciences, and illustrated works	268	85	362	117
Voyages, travels, geographical research	228	70	211	74
History, biography, &c.	319	84	286	77
Poetry and the drama	150	41	132	55
Year books and serials in volumes	286	—	353	—
Medicine, surgery, &c.	136	53	118	54
Belles lettres, essays, monographs, &c.	136	43	80	86
Miscellaneous, including pamphlets, not sermons	422	94	271	82
	4,294	1,540	4,293	1,415
	5,834		5,708	

V.—*Emigration and Immigration in the Year* 1880.

The following is a copy of Mr. Giffen's report to the secretary of the Board of Trade, relating to emigration from and immigration into the United Kingdom in the year 1880:—

"Sir,—I have the honour to submit herewith the tables relating to emigration and immigration from and into the United Kingdom for the year 1880, with comparative tables for a series of years past.

"As I had to notice a year ago, there is a large increase of emigration as compared with the previous years, and also a large increase in the excess of emigrants over immigrants, though, contrary to what appeared in last report, the amount of immigration has itself increased and not diminished. As will be noticed in detail presently, the figures both as to emigration and the excess of emigrants over immigrants are larger than for many years past, and among the largest on record, while there appear to be one or two circumstances of peculiar interest in the returns.

"The exact figures as to the increase of emigration and immigration and of the excess of emigrants, are as follows:—

(a.) Increase of Emigration.

	Total including Foreigners.	Emigrants of British and Irish Origin only.
Number of emigrants in 1880	332,294	227,542
" " '79	217,163	164,274
Increase	115,131	63,268

"The increase in the total emigration is thus 115,131, as compared with 1879, although in 1879 there had been a considerable increase over the previous year, and the increase in the emigration of persons of British and Irish origin only is 63,268, also succeeding an increase in 1879 over 1878. The figures now touched are very large. The figure for the total emigration is 332,294, and since 1870 the highest figure reached in any previous year was 310,612 in 1873; and the figure for emigration of persons of British and Irish origin only is 227,542, which was only equalled in one year of the decade now ended, viz., 1873, when the corresponding figure was 228,345. Previously to 1853 the nationality of emigrants was not distinguished in the returns, but since that date, with the exception of the year 1873, the present figure as to emigration of persons of British and Irish origin has only been exceeded on two occasions, viz., 1853 and 1854, when the corresponding figures were 278,129 and 267,047. In other words, emigration was last year at the maximum it has reached at any time since the years which immediately followed the Irish famine.

(b.) Increase of Immigration.

	Total including Foreigners.	Immigrants of British and Irish Origin only.
Number of immigrants in 1880	68,316	47,007
" " '79	53,973	37,936
Increase in 1880	14,343	9,071

"Thus the number of immigrants has increased in the past year, but the increase is inconsiderable compared with the increase of emigrants, so that it is quite consistent with a great increase of the excess of emigrants. It will be seen from the last of the comparative tables annexed, that the figures of immigration for last year were much below those which have been at times observed since a fairly complete record of immigration has been kept.

(c.) Increase of Excess of Emigrants.

	Total Emigration and Immigration.	Emigration and Immigration of Persons of British and Irish Origin only.
Number of emigrants in 1880	332,294	227,542
,, ,, '79............	68,316	47,007
Excess of emigrants	263,978	180,535
Corresponding excess in 1879	163,190	126,338
,, ,, '78	69,712	57,958
,, ,, '77	38,123	31,305
,, ,, '76	44,665	38,065

"Thus the excess of emigration—the excess of people leaving the United Kingdom for places out of Europe over those returning from the same places—was very large last year, reaching no less a sum than 263,978, as compared with 163,190 in 1879, and with 69,712 in 1878, and with smaller figures still in 1877 and 1876. The total is in fact considerably larger than in any year since 1870, from which date immigration has been recorded with some completeness. The highest figures for any previous years were for 1872 and 1873, when they were respectively 225,032 and 224,196.

"The excess of emigrants of British and Irish origin only was also very large last year, being 180.535, as compared with 126.338 in 1879, with 57.958 in 1878, and with very small figures in 1877 and 1876. It is unfortunately, impossible to compare these figures with those of any earlier period, the distinction between foreigners and persons of British and Irish origin only not having been made in the emigration statistics before 1876. It may be inferred, however, from a comparison of the figures as to total emigration and immigration, that the above excess was probably as large as in any year since 1853 and 1854. The past year has, in fact, been one of the years of large emigration from the United Kingdom, and not merely of large nominal emigration, but of real loss of population, through more persons leaving the country for places out of Europe than what return hither.

"I may again be permitted to call attention to the coincidence between this increase of emigration and the revival of trade in this country and the United States, just as I have called attention in former reports to the falling off of emigration in years of depression. Whatever the explanation may be, the coincidence seems well established. Thus far also, the coincidence of a large figure of immigration with a high amount of emigration seems well established, though it remains to be seen whether, as in former periods, immigration will go on increasing for a time after emigration has begun to fall off. The matter was discussed very fully in a paragraph in my last report,* to which I have nothing to add now, with the exception that I may notice that so far the facts of 1880 have been in accordance with what was expected and with former experience. There appears to be a regular ebb and flow in emigration according as trade is good or bad, but the maximum is in years of trade revival succeeding a great depression, and the minimum is in the years of depression itself. It will be interesting to observe how far the future facts of emigration will conform to this order. At the same time it is to be observed that possibly the emigration of last year was swollen by a very special cause, as will be noticed afterwards, although in any case it was a year in which a considerable increase of emigration was 'due.'

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* This paragraph was as follows:—"The actual decline of immigration at a time when emigration increases appears important. It would seem to be a natural

"As I had also to notice last year, the increase in the emigration is mostly to North America, principally the United States, and there is, in fact, for the past year, a marked decrease in the emigration to Australasia. The facts are brought out in the following table, which is continued from last year's report:—

Destinations of Excess of Emigrants over Immigrants among Persons of British and Irish Origin only in the undermentioned Years.

Country of Emigration and Immigration.	Excess of Emigrants in				
	1876.	1877.	1878.	1879.	1880.
United States	(−) 143*	603	20,654	71,758	140,052
British North America	2,706	2,033	4,448	14,455	16,214
Australasia	29,617	25,501	32,272	35,992	18,274
All other parts	5,885	3,168	584	4,133	5,995
Total	38,065	31,305	57,958	126,338	180,535

* Excess of immigrants.

inference from this circumstance that there is always a certain amount of 'tentative' emigration, and that of those who go away a larger number stay in the countries to which they depart in good times than in times when trade is depressed. Thus the diminution of immigration in a year like 1879 is a sign of the operation of causes which are likely to promote emigration for some time afterwards. By-and-by, as emigration increases, immigration will increase too, till at last, when the tide is again turning, immigration will be large in the face of declining emigration, and there will be a small excess of emigrants; but for the present, judging by past statistics, we seem to be at the comparatively early stage of a new tide of emigration. In confirmation of this opinion, it seems sufficient to glance at No. 15A of the annexed tables. It will there be seen that between 1870 and 1873, emigration and immigration both increased, but there was very little increase in the excess of immigrants; that in 1874 there was a large decrease of emigration coupled with a large increase of immigration, so that the excess of emigrants showed a large diminution, the exact contrary of what is now occurring; and that from 1874 to 1877 there was a steady decline of both emigration and immigration, but more in the former than the latter, so that the excess of emigrants declined. It seems reasonable to infer that the present movement is likely to follow the same course, and will be followed by an increase of both emigration and immigration, accompanying a considerable net emigration, and then by a decrease of both, accompanied by a very small net emigration. Of course I do

"This shows that while the whole addition to the net emigration last year was about 54,000, the increase to the United States alone was 68,000; there being, in fact, a diminution of nearly 18,000 in the emigration to Australasia, viz., from 35,992 to 18,274. The contrast between years like 1876 and 1877, when two-thirds of the whole excess of emigration from the United Kingdom was to Australasia, and a year like 1880, when more than three-fourths of much larger figures is to the United States, and the proportion to Australasia is less than 10 per cent., appears to be very striking.

"As in former reports, I also include a summary table, showing the numbers of cabin to steerage passengers included in the tables of emigration. The increase in 1880, it will be observed, is almost entirely in steerage passengers:—

Number of Cabin and Steerage Passengers leaving the United Kingdom for Places out of Europe, in each of the Years from 1876 *to* 1880 *inclusive.*

Years.	Cabin Passengers.	Steerage Passengers.	Total.
1876	41,900	96,322	138,222
'77	37,147	82,824	119,971
'78	43,168	104,495	147,663
'79	43,928	173,235	217,163
'80	50,734	281,560	332,249

"So far it has been possible to continue this report on much the same lines as those of the last two or three years, the facts being more or less continuous and capable of anticipation. When we come, however, to analyse the composition of the emigration, we find a sudden change. The emigration of persons of Irish origin, which had fallen to a very low point between 1875 and 1879, was suddenly increased last year to 93,641, or 12,000 in excess of the annual average between 1861 and 1870, and slightly in excess of the annual average for the period from 1853 to 1860; and the proportion of Irish emigration to the total emigration from the United Kingdom, which had fallen to about 25 per cent., has again risen to 41 per cent., not quite to the high proportion of former years, but approaching it.

"The facts are shown in the following summary table, continued from last year's report:—

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not put forward any such opinion authoritatively, the sole object being to call attention to what seems the bearing of the figures when compared with those of former periods."

Statement of the Number and Proportion of Persons of English, Scotch, and Irish Birth respectively, in the Total Emigration of Persons of British Origin, at different Periods.

Period.	English.		Scotch.		Irish.		Total.
	Number.	Percentage of Total.	Number.	Percentage of Total.	Number.	Percentage of Total.	
Three yrs. 1853–55	211,013	30	62,514	9	421,672	61	695,199
Five years '56–60	243,409	39	59,016	10	315,059	51	617,484
" '61–65	236,838	33	62,461	9	418,497	58	717,796
" '66–70	368,327	43	85,621	10	400,085	47	854,033
" '71–75	545,015	56	95,055	10	329,467	34	969,537
Year 1876	73,396	67	10,097	9	25,976	24	109,469
" '77	63,711	67	8,653	9	22,831	24	95,195
" '78	72,323	64	11,087	10	29,492	26	112,902
" '79	104,275	64	18,703	11	41,296	25	164,274
" '80	111,845	49	22,056	10	93,641	41	227,542

"This would not be the place to discuss the causes of the special increase of Irish emigration, nor how far it may be due to the general causes above referred to. It would seem that to some extent the explanation must be the exceptional suffering of large numbers of the Irish population from the series of bad harvests and low prices of agricultural produce, and their exceptional readiness to profit by the improved demand for labour which sprang up in the autumn of 1879 and the early part of 1880 in the United States. But whatever the explanation, the great increase in the Irish emigration seems important enough to have special attention drawn to it. The increased emigration of 'foreigners' seems also to have been in proportion far greater than that of English or Scotch.

"In the preparation of the returns it has also been observed that the great increase of emigration was in the early part of last year. This has been specially the case with the Irish emigration, as the following table will show:—

Number of Irish Persons that left the United Kingdom for Places out of Europe in each Month of the Years 1880, 1879, *and* 1878.

Months.	1880.			1879.			1878.		
	From English and Scotch Ports.	From Irish Ports.	Total.	From English and Scotch Ports.	From Irish Ports.	Total.	From English and Scotch Ports.	From Irish Ports.	Total.
January	1,082	934	2,016	743	235	978	397	214	611
February	1,402	1,891	3,293	907	358	1,265	901	350	1,251
March	2,953	4,557	7,510	1,209	942	2,151	802	830	1,632
April	6,643	12,329	18,972	1,919	2,666	4,585	1,406	1,993	3,399
May	6,595	13,643	20,238	2,237	3,363	5,600	2,156	2,611	4,767
June	4,191	7,114	11,305	1,906	1,930	3,836	1,301	1,333	2,634
July	2,357	4,580	6,937	1,973	1,539	3,512	1,811	955	2,766
August	2,505	4,047	6,552	2,537	2,118	4,655	1,799	1,569	3 368
September....	2,383	4,264	6,647	2,075	2,104	4,179	1,670	1,422	3,092
October	1,885	3,754	5,639	2,474	2,336	4,810	2,428	1,009	3,437
November....	1,141	1,633	2,774	1,981	1,692	3,673	1,154	496	1,650
December	1,080	678	1,758	1,164	888	2,052	657	228	885
Total ...	54,217	59,424	93,641	21,125	20,171	41,296	16,482	13,010	29,492

"Thus, of the 93,000 persons of Irish origin who left the United Kingdom last year, no fewer than 63,000 departed in the first six months of the year, although in a year like 1878, for instance, the departures in the first six months are no greater than in the second six months. The table confirms the impression that the large increase of emigration last year was to some extent due to a 'spurt,' being connected with the suddenness of the American trade revival, and that though the figures remain large, we shall not have so sudden an increase in the present year, if indeed there is not some falling off.

"The usual tables are added, showing in detail the sex, age, condition, and occupation of the emigrants; the numbers departing from each of the ports of the United Kingdom, the particulars of detention money received by emigration officers, and the amount of remittances by settlers in the United States and British North America to their friends at home; besides comparative tables. With regard to these remittances, however, I have again to express my regret at the inadequacy of the data on which the statistics are based. The means at the command of the managers of banks for distinguishing the character of the drafts from the United States and British North America which they pay, are not apparently sufficient to enable them to say what remittances are from settlers to friends at home, and what remittances are made for other purposes. The data are necessarily so incomplete that it may be doubted whether it was ever worth while to publish the figures, or whether it is worth while any longer to continue them."

VI.—*Notes on Economical and Statistical Works.*

On the Value of Political Economy to Mankind, being the Oxford Cobden Prize Essay for 1880. By A. N. Cumming, Snell Exhibitioner of Balliol. (Glasgow: James Madehose.)

It is not a little remarkable that the judges appointed to examine the Oxford Cobden prize essays for 1880, should have thought fit to assign the first place to a paper whose author bases his treatment of political economy on the views set forth by Mr. Ruskin. We have nothing to say against the essay considered as an academic exercise, except that it is stamped with a defect which is too common with Oxford work on moral or physical-moral subjects, namely, a certain superficiality, the fruit of a course of reading which is wide but wanting in thoroughness. Mr. Cumming has certainly read widely, and has acquired something more than the mere elements of a literary style, but the general impression his paper leaves on us is, that it is the work of a clever young man, accustomed to write essays, who having already some knowledge of economic literature, has specially "got up" the subject set by the University of Oxford for the Cobden prize competition of 1880.

Mr. Cumming's conception of political economy is deeply influenced, as we have said, by his admiration for Mr. Ruskin. It would not be too much to say that Mr. Cumming is an educated

Ruskinian, by which we mean a thinker who accepting Mr. Ruskin's point of view that "all true economy is law of the house," has found it necessary to modify the deductions drawn from it in consequence of his knowing more both of economic facts and economic literature than his master. He commences his discussion of the value of political economy by tracing historically its formation and development as a science. Speaking of Adam Smith, he discriminates between the two elements "which have been worked out in all their discrepancy by the modern systems, and which have given birth to our two antagonistic schools—the scientific and the historical." Mr. Cumming says truly that they are not incompatible. He remarks that the fault of the historical school is that they do not combine with their examination of the evolution of political economy "an initial study of the first principles of men and wealth." He also defends political economy from the charges brought against it by M. Comte, that its growth has not been continuous, and that it has borne no fruit. He considers that Professor Jevons's work represents what is extravagant in the "scientific" school. He objects to it first, because the application of the calculus to economics cannot, he thinks, be carried out consistently, and next because the "incalculable element" introduced by the human will baffles quantitative expression. At this point Mr. Cumming quotes Bagehot's remarks on the caution with which statistics must be regarded. Unfortunately he misquotes, asserting that Bagehot said that statistics fluctuate and are "made," whereas what was really said was that stock exchange prices are *sometimes* "made." Mr. Cumming is evidently not aware of the entirely technical sense in which Bagehot was using the term "made," and has probably missed the point of the whole passage referred to, which is, that it is a mistake on the part of theorists to imagine that the price of Consols, Russian 1873, or London and North-Western Stock, is a price *of the same kind* as that of some out-of-the-way security, which is only inquired for perhaps once a month.

Mr. Cumming also refuses to admit Professor Bonamy Price's objections to the scientific form, objections which are nothing more than *bruta fulmina*, since even their author, as Mr. Cumming points out, allows that political economy is "a body of methodical knowledge." What Mr. Cumming's own view is may be seen from the following passage:—"There can be no rigidity in economics; no finality in society. Each system is true for its time, but yields before changing conditions; and the latest tendency of the modern world is to this effect—that the old, isolated consideration of wealth as a science in itself must be abandoned. The whole progress of modern practical economics teaches this. Political economy can only hold its place when affiliated to all the cognate social sciences. . . . . It began in wealth; it must end in government."

Here, then, we have put, in a few words, the claim of a not uninfluential school that political economy is to be regarded as the science of government. This notion, when looked at from one point of view, agrees with the theories of the economists of the continent; when looked at from another, it seems identical with the conception of Mr. Ruskin. "We need," says Mr. Cumming, "a great deal more paternal government, that bugbear of the old economists; not paternal government in the narrower sense, meaning thereby legislative restrictions and interference. What is meant thereby is that economic facts must fall under the grasp of an all-round idea of government. The logic of the science has brought us to this." Now, if these were merely the notions of a clever young university man with a taste for startling the world by novel utterances, they would not call for special remark; but they are the faithful representation of the ideas of a school which is strong here so far as intensity of purpose goes, and on the continent is also well represented intellectually. It is a school which confuses science with art, and does not realise in the least the magnitude of the forces against which it sets itself when demanding, as Mr. Cumming does, that government should dictate to labour its duties "by controlling and curing the insanities of competition." The theory is here put forward in all its naked absurdity, and the influence of Mr. Ruskin is traceable in this and other portions of Mr. Cumming's discourse. The same influence reveals itself in a still less pleasing aspect in the reckless statement that "at Orissa our 'abstract' science cost 750,000 of people their lives," since the government permitted the export of rice to go on, and refused to supply the people gratis. Inaccuracy is of course natural to theorists, who fail to see that there is any disadvantage to clearness of thought in an attempt to attack the whole problem of sociology at once. But we would point out to Mr. Cumming—first, that even granting the correctness of his views regarding the question of the exportation of rice (and that was a purely administrative question), he has no right whatever to assert that the whole of the deaths *in* Orissa (we must remind Mr. Cumming that Orissa is not a town, but a province) arose from this cause. As regards the Indian revenue question, Mr. Cumming would have done well to avoid such contentious matter as the opium duty.

VII.—*Notes on some of the Additions to the Library.*

Political Economy as a Branch of Education. Inaugural Address by Joseph Shield Nicholson, M.A., Professor of Commercial and Political Economy and Mercantile Law in the University of Edinburgh.

Professor Nicholson, the successor of the late Dr. Hodgson in the Chair of Political Economy at Edinburgh University, has recently published his inaugural address. The subject of his discourse was "Political Economy as a Branch of Education," but a great deal of it is occupied with a survey of the present position of economics, and with a general statement of Professor Nicholson's conception of the science. He appears to hold the view now accepted by the best authorities, that neither the extreme "deductive" school, nor the partizans of the historical method, nor, again, the nondescript section of thinkers who demand a "practical" political economy, are sound exponents of the principles of economic science. The economist "fixes his attention on wealth, and only considers other social factors so far as these appreciably affect wealth; as in every other science, minor causes are neglected;" but "no economist imagines that wealth can be treated quite independently of other social phenomena." For the historical method as a most important aid in the study of economics he has, however, much to say, especially for "negative historical criticism." "History furnishes us with endless examples of utopian schemes advanced by men actuated by the highest motives, but guided by insufficient knowledge." Again, "even the fullest examination of existing conditions is often not sufficient for the discovery or explanation of the laws we are in search of. We can only see the full value and import of existing institutions by tracing them to their beginnings far back in history." With regard to the deductive method, he very truly remarks that it is, when properly developed, "essentially mathematical." This view is now rapidly gaining ground in this country. A considerable impetus was given to its progress in the estimation of thinkers in this country, by Mr. Jevons's work, first published about ten years ago. As Professor Nicholson explains, this view of economics does not imply that a student of the science must be profoundly versed in mathematics, or even be skilled in dealing with mathematical formulæ, but that he must be familiar with the more general conceptions on which the science of quantity is based, and have a mind trained to make to some extent "the same kind of mental effort as in mathematics."

Indian Finance. By Thomas B. Moxon. Read before the Manchester Statistical Society, on 12th January, 1881. (John Heywood, Manchester; and 11, Paternoster Buildings, London, E.C.)

Mr. Moxon's paper on *Indian Finance* contains some interesting remarks on the various items in the *Indian Budget.* Among other matters, he has compiled a table apportioning, as nearly as may be, the loss by exchange among the various departments of government. He also discusses the vexed question of the utility of the Public Works Department, and urges that "as a working force it should be abolished, and only remain as a consultative council." He brings evidence to show that the engineering staff at present employed by the Indian Government is unnecessarily large, and asserts, with truth, that as regards irrigation works, the native engineers are better able to carry them on with success, under proper administrative supervision, than Europeans. The existence of this costly department also checks private enterprise.

History of the Free Trade Movement in England. By Augustus Mongredien, author of *Free Trade and English Commerce, &c.* (Cassell, Petter, Galpin, and Co.)

Mr. Mongredien's account of the rise and progress of the Free Trade Movement in England is carefully done. Considering the efforts that are now being made by a few unwise men to induce the nation to abandon the principles prescribed by sound economics, and follow the lead of the various nations who have lately declared their continued adherence to protectionism, it is well that the rising generation of Englishmen should be reminded of the strong practical reasons, apart from economic theory, which exist for maintaining free trade. The history of the agitation carried on by the Anti-Corn Law League is worthy of study on other grounds, since it is an example of what may be done by earnestness, energy, and perseverance, to change the current of the national policy, without the employment of violent means, or of measures inflicting injustice on anyone.

The Post Office and Aids to Thrift. By the Right Hon. Henry Fawcett. M.P., Her Majesty's Postmaster-General. (G. E. Eyre and W. Spottiswoode.)

In this little work Mr. Fawcett explains in simple language the various facilities now afforded by the Post Office to those who are desirous of saving small sums. He explains (1) how money can be saved; (2) how small amounts of government stocks can be bought; (3) how money can be sent; (4) how lives can be insured; and (5) how annuities can be bought. The work can be obtained gratis at any post office.

The Law Relating to Railway Rates. A Guide to Farmers and Traders. By W. A. Hunter, Barrister-at-Law, Professor of Jurisprudence, University College, London. Reprinted from the *Mark Lane Express.* (The Agricultural Press Company, Clement's House, Clement's Inn Passage, W.C.)

Professor Hunter's pamphlet on the law of railway rates will be found very valuable by traders and manufacturers, and not uninteresting to the general public. It is evident from the speeches made at the meetings of the railway companies by chairmen and directors, that an attack on the railway commission is imminent, and on the other hand there is a very general feeling among business people that the action of the commissioners has been beneficial to the community, and that their powers might be increased with advantage. "The severe pressure of foreign competition," says Professor Hunter, "has induced farmers and traders to scrutinise railway charges, which were paid without examination in more prosperous times." As far as traders are concerned we may hope that the period of depression is over for some years, though that is no reason why excessive charges, if made by the railways, should be submitted to. Farmers, however, are, we fear, hardly likely to be in a better position than they are now in the near future, and it cannot be expected that they will desist from agitating against carriage rates which prejudice their interests. Professor Hunter explains in clear and precise language the general nature of the liabilities of railway companies as regards carriage incurred by them in virtue of the various Acts of parliament regulating their operations as carriers of goods. The general principles on which these Acts are based are thus set forth by him. "The railway companies have a monopoly always over some considerable portion of their lines, sometimes over the whole. Except where a railway has to compete with sea traffic, it may be said that the aid of free competition in keeping their charges within bounds is practically absent. The legislature has recognised this obvious truth as the basis of all railway legislation. Accordingly, in two essential points, freedom of contract is set aside. First. each railway company is tied down by its special Act to certain maximum or limiting charges. A scale is given: they may take less, but they cannot demand more. Secondly, they must not carry for one man cheaper than for another; they must not prejudice any person or description of traffic." These are the two points which Professor Hunter discusses, excessive rates, and undue or unreasonable preference. Having thus stated the general principles involved, he explains how a person who has reason to believe that he is not being fairly dealt with by a railway company should proceed. The company is bound to keep a book stating their charges at all their stations or wharves, and any person may demand to see and take extracts or copies from these books. The companies in some cases "keep their books according to the railway clearing house classification, and not according to the classification in their own Acts." Professor Hunter thinks that they could be compelled by the railway commissioners to keep the books in the manner contemplated by the law. The trader having ascertained what the company actually does charge, the rates demanded must be compared with the rates authorised by the company's special Act, with the view of ascertaining whether it is legal or not. Professor Hunter shows, by reference to various legal decisions, that overcharges may be recovered from the company. As regards undue preference shown by a railway company to one person to the prejudice of another, there have been of late many decisions which indicate the state of the law, the leading case being *Evershed v. The London and North-Western Railway.* Under certain circumstances, competition has been held to justify a company in giving a preference to a trader who guarantees the transmission of some fixed minimum of goods. The railway commissioners considered in a special case tried, that "the necessity of collecting goods from a distance, made it not unreasonable that favourable terms should be offered to those who are willing to bind themselves to go to considerable expense and preparation to earn the preference, *and as a proportionate reduction of the companies' tariff was offered for any smaller amount of traffic for which a guarantee was given,*" they decided that the action of the company was permissible. This view of the matter bears on the question of the low rates granted by certain railway companies for the carriage of grain and other articles brought from abroad. The rates charged are a portion of the through rates from New York, let us say, to London. If the companies did not grant them the goods would be sent to their destination entirely by sea. Professor Hunter remarks that it is questionable whether the competition between railway companies and sea-borne traffic is advantageous either to themselves or the public. Mr. F. R. Conder, whom Professor Hunter quotes, has constantly maintained that such competition is mischievous whenever there is no need for a very speedy transmission of the goods, and both he and Mr. Fleming assert that the mineral traffic of the chief "heavy" lines is of no value, or worse than no value to them. This, however, is a matter for the shareholders to determine. Professor Hunter concludes by explaining the law of the liability of railway companies "as insurers of the goods or animals conveyed by them."

VIII.—*Additions to the Library.*

Additions to the Library during the Quarter ended 31st March, 1881.

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Austria and Hungary—	
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Oesterreichisch-Ungarische Sparcassen-Zeitung. Current numbers	The Editor
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Denmark. Nationalökonomisk Tidsskrift, 1881, 1ste—2det Hefte	The Danish Political Economy Society
Egypt—	
Commerce Extérieur de l'Egypte. 3e Trimestre, 1880 Navigation par le Canal de Suez. Octobre à Décembre, 1880	The Director-General of Statistics
France—	
Ministère des Finances. Bulletin de Statistique et de Législation comparée. Décembre, 1880; Janvier et Février, 1881	M. A. De Foville
Tableau Synoptique Statistique des Pays-Bas (Hollande et Belgique) et de la France pour la période de 1840 à 1877	Mons. Jules Robÿns
Statistique Annuelle de la France. Année 1877, cxxxiv and 428 pp.	Ministry of Agriculture and Commerce
Economiste Français, L'. Current numbers Révue Bibliographique Universelle— Partie Littéraire, Décembre, 1880, à Mars, 1881 ,, Technique, Décembre, 1880, à Mars, 1881 Révue Géographique Internationale, Nos. 47 and 48, 1879; No. 51, 1880	The Editor
Société de Statistique de Paris, Journal de la. Janvier à Mars, 1881	The Society
Germany—	
Monatshefte zur Statistik des Deutschen Reichs, November, 1880—Januar, 1881 Statistisches Jahrbuch für das Deutsche Reich. 2ter Jahrgang, 1881. viii and 192 pp. Maps	Imperial Statistical Office
Prussia.—*Preussische Statistik*—	
Bewegung der Bevölkerung mit Einschluss der Wanderungen während 1879. Ergebnisse der Ermittelung des Ernteertrages in 1879. Zeitschrift des K. Preussischen Statistischen Bureau's. Juli bis December, 1880	The Royal Statistical Bureau of Prussia
Berlin. Veröffentlichungen des Statistischen Bureau's der Stadt; Eheschliessungen, Geburten, Sterbefälle und Witterung, &c. Current numbers	Statistical Bureau of Berlin
Frankfort-a/M. Jahres-Bericht des Frankfurter Vereins für Geographie und Statistik. 1878-80	The Geographical and Statistical Society of Frankfort

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Annali di Statistica. Serie 2ª, vol. xvii, 1880; vol. xviii, 1881	
Atti Parlamentari. Camera dei Deputati. Provvedimenti per l'Abolizione del Corso Forzoso. 4to. 1880	
Banques d'Emission. Statistique Internationale des. France. Autriche - Hongrie, Belgique, Pays-Bas, Suède, Norvége, Espagne. Imp 8vo. Rome, 1881.	
Bollettino Settimanale dei Prezzi di alcuni dei principali Prodotti Agrari. Current numbers	
Bollettino Mensile delle Situazioni dei Conti degli Istituti d'Emissione. Anno xi, Nos. 10 e 11.	
Bollettino Bimestrale delle Situazioni dei Conti. Anno xi, Nos. 4 e 5	
Bollettino Bimestrale del Risparmio. Anno v, No. 5	
Bollettino di Notizie Commerciali. Anno ii, Nos. 20—24; Anno iii, Nos. 1—6	
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Commissione Consultiva per gli Istituti di Previdenza e sul Lavoro. 23 pp., imp. 8vo. Roma. 1877.	Marco Besso, Esq.
Importazione e di Esportazione, Statistica di. 1880	The Director-General of Statistics
Istruzioni Scientifiche pei Viaggiatori. 556 pp., diagrams, 8vo. 1881.	
Ministero dei Lavori Pubblici. Relazione Statistica sulle Costruzioni e sull' Esercizio delle Strade Ferrate Italiane per 1879. 505 pp., a map, 4to.	
Opere Pie esistenti in Italia nel 1878. Di una Statistica Sommaria delle. 45 pp., 8vo. Roma e Torino	
Servizio Postale in Italia. Quindicesima Relazione sul. 1879.	
Telegrafi del Regno d'Italia nell' anno 1879. Relazione Statistica sui. Diagrams, lxviii and 198 pp.	
Vestiario e del Corredo Militare. Del Servizio del. 1878. xii and 213 pp.	
A diagram representing:—Movimento dei Depositi a Risparmio presso le casse di Risparmio e presso altri Istituti di Credito in Italia confrontati con alcuni altri Fattori dell' Economia Nazionale.	
Societa Italiana d'Igiene. Giornale della. Current numbers	The Society
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Statistical Society in Tokei. First issue of the Journal (in Japanese). 8vo.	Bunso Kurr, Esq.
Asiatic Society of Japan, Transactions of the. December, 1880	The Society

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Sociedade de Geographia de Lisboa—	
Moçambique. 39 pp.	The Society
Explorações Geologicas e Mineiras nas Colonias Portuguezas. 26 pp., 8vo. 1881	
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Spain. Boletin de la Sociedad Geografica de Madrid. Tomo 9. Nos. 4, 5, y 6	The Society
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NORWAY—	
Norges Officielle Statistik—	Central Statistical Bureau
A. No. 2. Fattigstatistik for 1877. (Assistance Publique)	
B. No. 2. Tabeller vedkommende Skiftevæsenet i Norge, 1877. (Successions et Faillites)	
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Sammandrag af Riksbankens Ställning, Januari—December, 1880	
Öfversigt af Sveriges Riksbanks Ställning, Sammanfattad efter 1879 års Bokslut	
General-Sammandrag öfver 1877 och 1878. Bevillning	
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Sammandragen öfversigt af de Enskilda bankinrättningarnes ställning efter 1879 års Bokslut, &c.	
Sammandrag af de solidariska Enskilda bankernas samt aktiebankernas och kreditaktiebolagens uppgifter för Januari—December, 1880	
Statistisk Tidskrift. H. 59 and 60, 1880	
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Agriculture, Report for 1879. 621 pp. Plates	The Commissioner of Agriculture
Bureau of Statistics—	
Summary Statement of Imports and Exports, October and November, 1880	J. Nimmo, Esq., jun.
Annual Report on the Foreign Commerce, to June, 1880. 63 pp. A chart	
Commercial Relations, October and November, 1880	
Comptroller of the Currency, Report for 1880. 202 pp.	J. J. Knox, Esq.
Refunding of the National Debt. 67 pp. 8vo. Washington, 1881	The Secretary of the Treasury
American Academy of Arts and Sciences, Proceedings of the. Part 2, to May, 1880	The Academy
American Philosophical Society, Proceedings of the. March, 1880	The Society
American Geographical Society, Bulletin of the. No. 5, 1879	”
Bankers' Magazine. Nos. 7, 8, and 9, vol. xv.	The Editor
Franklin Institute, Philadelphia, Journal of the. Vol. cxi, Nos. 661 and 662	The Society
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India, Colonial, and other Possessions—

India, British—	
Sanitary Measures in India, Report for 1878-79. 220 pp.	C. C. Prinsep, Esq.
Trade and Navigation, Monthly Accounts of. October—December, 1880	The Indian Government
BENGAL. General Report on Public Instruction in, for 1879-80	
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Statistics of the Colony for 1879, x and 225 pp.	"
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Mercury, The (Summary for Europe). No. 6071. 1880	The Editor
Victoria—	
Mining Surveyors and Registrars, Reports of the, to September, 1880	The Minister of Mines
Statistical Register for 1879—	
Part VII. Interchange	H. H. Hayter, Esq., Government Statist
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Friendly Societies, Industrial and Provident Societies, and Trades Unions. Reports for 1879. Part 1. (*a*), 143 pp.	
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Navy, Statistical Report of the Health of the, for 1879. xix and 92 pp.	Admiralty Medical Department
Statistical Atlas of England, Scotland, and Ireland, edited by G. P. Bevan, F.G.S.:—	Messrs. W. and A. K. Johnston
Part 1, Religious	
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REGISTRATION OF THE UNITED KINGDOM.

No. I.—ENGLAND AND WALES.

MARRIAGES—To 30th September, 1880.

BIRTHS and DEATHS—To 31st December, 1880.

A.—*Serial Table of* Marriages, Births, *and* Deaths, *returned in the Years* 1880-74, *and in the* Quarters *of those Years.*

Calendar Years, 1880-74:—*Numbers.*

Years.........	'80.	'79.	'78.	'77.	'76.	'75.	'74.
Marriages No.	—	181,719	190,054	194,352	201,874	201,212	202,010
Births........ ,,	880,520	882,866	891,906	888,200	887,968	850,607	854,956
Deaths .... ,,	528,056	528,194	539,872	500,496	510,315	546,453	526,632

Quarters *of each Calendar Year,* 1880-74.

(I.) Marriages:—*Numbers.*

Qrs. ended last day of	'80.	'79.	'78.	'77.	'76.	'75.	'74.
March........ No.	41,202	35,851	39,137	39,704	41,559	42,376	41,413
June .... ,,	45,851	46,488	48,584	49,065	51,327	48,410	52,827
September ,,	47,662	45,071	46,628	47,743	49,160	49,826	49,144
December ,,	—	54,309	55,705	57,840	59,828	60,600	58,626

(II.) Births:—*Numbers.*

Qrs. ended last day of	'80.	'79.	'78.	'77.	'76.	'75.	'74.
March........ No.	221,605	226,669	220,792	230,241	230,080	214,862	214,514
June .... ,,	232,506	221,011	228,620	223,249	226,097	214,939	217,598
September ,,	218,766	218,170	222,604	213,195	216,302	211,109	210,323
December ,,	207,643	217,016	219,890	221,515	215,489	209,697	212,521

(III.) Deaths:—*Numbers.*

Qrs. ended last day of	'80.	'79.	'78.	'77.	'76.	'75.	'74.
March........ No.	145,704	156,390	139,373	134,931	142,218	162,256	136,518
June .... ,,	125,196	132,186	129,096	131,244	126,239	130,999	123,907
September ,,	131,030	103,733	129,664	109,467	119,977	121,547	124,253
December ,,	126,126	135,885	141,739	124,854	121,881	131,651	141,954

Annual Rates of Marriages, Births, *and* Deaths, *per* 1,000 Persons Living *in the Years* 1880-74, *and in the* Quarters *of those Years.*

Calendar Years, 1880-74:—*General Ratios.*

Years…………	'80.	Mean '70-79.	'79.	'78.	'77.	'76.	'75.	'74.
Estmtd. Popln. of England *in thousands* in middle of each Year….	25,480,	—	25,165,	24,854,	24,547,	24,244,	23,944,	23,649,
Persons Married …………	—	16·4	14·4	15·3	15·8	16·7	16·8	17·1
Births ……………	34·6	35·7	35·1	35·9	36·2	36·6	35·5	36·2
Deaths……………	20·7	21·7	21·0	21·7	20·4	21·0	22·8	22·3

Quarters *of each Calendar Year,* 1880-74.

(I.) Persons Married:—*Ratio per* 1,000.

Qrs. ended last day of	'80.	Mean '70-79.	'79.	'78.	'77.	'76.	'75.	'74.
March ……………	13·0	13·4	11·6	12·8	13·1	13·8	14·4	14·2
June…………………	14·4	16·7	14·8	15·7	16·0	17·0	16·2	17·9
September ………	14·8	15·9	14·2	14·9	15·4	16·1	16·5	16·5
December ………	—	19·4	17·1	17·8	18·7	19·6	20·1	19·7

(II.) Births:—*Ratio per* 1,000.

Qrs. ended last day of	'80.	Mean '70-79.	'79.	'78.	'77.	'76.	'75.	'74.
March ……………	34·9	37·0	36·5	36·0	38·0	38·1	36·4	36·8
June… ……………	36·6	36·3	35·2	36·9	36·5	37·4	36·0	36·9
September ………	34·1	34·7	34·4	35·5	34·5	35·4	35·0	35·3
December ………	32·3	34·8	34·2	35·1	35·8	35·3	34·7	35·7

(III.) Deaths:—*Ratio per* 1,000.

Qrs. ended last day of	'80.	Mean '70-79.	'79.	'78.	'77.	'76.	'75.	'74.
March ……………	22·9	24·2	25·2	22·7	22·3	23·5	27·5	23·4
June…………………	19·7	21·1	21·1	20·8	21·4	20·9	21·9	21·0
September ………	20·4	19·8	16·4	20·7	17·7	19·6	20·1	20·8
December ………	19·6	21·7	21·4	22·6	20·2	19·9	21·8	23·8

B.—*Comparative Table of* CONSOLS, PROVISIONS, COAL, *and* PAUPERISM *in each* QUARTER *of* 1878-79-80.

Quarters ending	Average Prices of									PAUPERISM.	
	CONSOLS (for Money) per 100*l.* Stock.	DIS-COUNT charged by the Bank of England.	WHEAT per Quarter in England and Wales.		MEAT per Pound at the Metropolitan Meat Market (by the Carcase), with the *Mean* Prices.		POTATOES (Best Quality) per Ton at Waterside Market, Southwark.	COAL (Sea-borne) in the London Market per Ton		Quarterly Average of the Number of Paupers Relieved on the *Last Day* of each Week.	
					Beef.	Mutton.				In-door.	Out-door.
1878	£		*s.*	*d.*	*d. d. d.*	*d. d. d.*	*s. s. s.*	*s.*	*d.*		
Mar. 31	95⅜	2·48	50	10	4⅛—8⅛ 6⅛	4⅝—9¼ 7	188—212 200	16	2	162,442	540,571
June 30	95⅝	2·85	50	2	4½—8⅝ 6⅝	5—9½ 7¼	150—187 168	16	4	151,715	533,787
Sept. 30	95⅛	4·36	44	6	4½—8¼ 6⅜	4¾—9¼ 7	120—151 135	16	–	145,966	513,589
Dec. 31	95	5·41	40	2	4¼—7¾ 6	4⅞—8¾ 6⅞	111—132 121	17	4	159,721	523,996
1879											
Mar. 31	96¼	3·38	39	–	3⅞—7¼ 5⅝	4½—8½ 6½	118—144 131	16	6	172,200	599,991
June 30	98½	2·05	41	2	4⅛—7¼ 5¾	4¾—9 6⅞	128—161 144	16	2	159,946	567,915
Sept. 30	97¾	2·00	47	2	4—7¾ 5⅞	4⅝—9 6⅞	182—233 207	14	10	157,113	548,755
Dec. 31	98	2·60	48	1	3¾—7¼ 5½	4½—7⅞ 6¼	136—160 148	15	10	173,099	565,644
1880											
Mar. 31	98	3·00	45	1	4—7⅝ 5⅞	4½—8¼ 6⅜	159—182 170	14	10	182,836	595,908
June 30	98⅞	2·93	46	1	4¼—8⅛ 6¼	5—9⅜ 7¼	153—170 161	14	5	168,661	555,196
Sept. 30	98	2·50	43	–	4¼—7¾ 6	4¾—8¾ 6¾	124—132 128	14	6	162,879	539,670
Dec. 31	99¼	2·62	43	1	4⅞—7¾ 6⅜	5¼—8¾ 7	99—112 105	16	1	177,441	543,242

C.—*General Average Death-Rate Table:—Annual Rate of Mortality to* 1,000 *of the Population in the Eleven Divisions of England and Wales.*

Divisions.	Average Annual Rate of Mortality to 1,000 Living in						
	Ten Years.		Year	1880. Quarters ending			
	1851-60.	1861-70.	1880.	March.	June.	Sept.	Dec.
England and Wales	22·2	22·4	20·7	22·9	19·7	20·4	19·6
I. London	23·6	24·3	22·2	27·3	19·4	21·3	20·9
II. South-Eastern	19·6	19·1	17·2	20·2	15·9	16·8	15·8
III. South Midland	20·4	20·2	17·9	20·8	16·7	17·2	17·0
IV. Eastern	20·6	20·1	19·7	21·7	18·7	19·7	18·5
V. South-Western	20·0	19·9	18·6	22·6	18·5	16·0	17·1
VI. West Midland	22·4	21·8	19·4	21·6	18·7	18·9	18·4
VII. North Midland	21·1	20·8	21·3	22·4	19·7	22·0	21·1
VIII. North-Western	25·5	26·3	24·4	24·9	23·7	25·5	23·3
IX. Yorkshire	23·1	24·0	21·1	22·0	20·2	22·1	20·2
X. Northern	22·0	22·7	21·4	21·1	21·2	22·3	20·8
XI. Monmthsh. and Wales	21·3	21·6	20·7	23·1	21·8	17·9	19·8

D.—*Special Average Death-Rate Table:*—ANNUAL RATE *of* MORTALITY *per* 1,000 *in* TOWN *and* COUNTRY DISTRICTS *of* ENGLAND *in each Quarter of the Years* 1880-78.

	Area in Statute Acres.	Population Enumerated.	Quarters ending	Annual Rate of Mortality per 1,000 in each Quarter of the Years			
		1871.		1880.	Mean '70-79.	1879.	1878.
In 134 Districts, and 57 Sub-districts, comprising the *Chief Towns*	3,184,419	12,900,142	March ..	24·2	25·8	26·6	24·4
			June	20·7	22·4	21·6	22·2
			Sept.	22·6	22·1	17·5	23·2
			Dec.	21·0	24·1	23·8	24·9
			Year	22·1	23·6	22·4	23·7
In the remaining Districts and Sub-districts of England and Wales, comprising chiefly *Small Towns* and *Country Parishes*	34,134,802	9,812,124	Year	18·5	19·2	19·1	19·0
			March ..	21·0	22·0	23·2	20·5
			June ...	18·2	19·5	20·3	18·9
			Sept.	17·2	16·7	14·7	17·2
			Dec.	17·6	18·5	18·0	19·4

Note.—The three months January, February, March, contain 90, and in leap year 91 days; the three months April, May, June, 91 days; and each of the last two quarters of the year, 92 days. For this inequality a correction is made in calculating the rate of mortality in the different quarters of the year.

E.—*Special Town Table:*—POPULATION; BIRTH-RATE *and* DEATH-RATE *in each Quarter of* 1880, *in* TWENTY-THREE *Large Towns.*

Cities, &c.	Estimated Population in the Middle of the Year 1880.	Annual Rate to 1,000 Living during the Thirteen Weeks ending							
		3rd April. (1st Quarter.)		3rd July. (2nd Quarter.)		2nd October. (3rd Quarter.)		1st Jan., 1881. (4th Quarter.)	
		Births.	Deaths.	Births.	Deaths.	Births.	Deaths.	Births.	Death
Total of 20 English towns	7,499,468	37·2	25·5	37·6	20·4	35·2	23·2	34·4	21·
London	3,664,149	37·8	27·3	37·0	19·4	35·3	21·3	34·7	20·
Brighton	107,321	31·7	18·7	31·9	17·2	28·9	22·8	27·4	19·
Portsmouth	134,224	32·7	19·8	32·7	15·9	33·4	20·7	32·7	18·
Norwich	85,827	34·9	24·6	36·7	22·9	33·2	28·7	33·1	22·
Plymouth	74,993	31·0	31·1	33·9	25·3	30·5	21·3	30·6	20·
Bristol	213,536	34·4	22·7	36·1	19·5	33·5	18·0	31·3	20·
Wolverhampton	75,970	38·1	19·8	38·2	19·5	34·0	23·8	37·7	21·
Birmingham	394,738	40·4	22·5	41·9	19·5	36·4	21·9	35·6	19·
Leicester	129,912	38·1	21·0	38·6	18·4	38·5	29·2	34·0	23·
Nottingham	173,627	36·2	28·7	39·8	22·6	36·8	25·2	35·6	23·
Liverpool	544,056	38·9	26·7	40·5	26·0	37·5	30·2	36·5	26·
Manchester	363,130	37·6	27·6	37·3	24·8	33·9	26·2	32·4	22·
Salford	185,786	40·1	24·4	40·2	23·7	37·3	29·7	35·8	25·
Oldham	115,413	33·8	24·0	35·5	22·9	33·5	23·8	31·8	22·
Bradford	197,196	30·6	21·5	33·7	19·2	31·7	22·4	33·1	20·
Leeds	318,929	35·2	21·2	38·1	18·1	35·2	24·7	34·3	20·
Sheffield	304,938	34·3	21·6	37·7	21·0	34·9	23·5	34·2	18·
Hull	149,627	38·9	26·1	40·1	19·0	36·9	26·0	35·6	23·
Sunderland	116,730	37·9	22·6	41·4	22·5	35·9	28·5	32·2	24·
Newcastle-on-Tyne	149,366	37·3	23·2	35·9	21·1	35·5	22·8	34·2	20·
Edinburgh	229,839	33·0	22·5	36·5	22·7	31·6	18·9	29·9	21·
Glasgow	589,598	33·7	24·6	35·5	24·1	29·9	19·8	28·7	21·
Dublin	314,666	33·8	40·4	34·5	36·6	31·8	34·6	28·1	32·

*—Divisional Table:—*MARRIAGES *in the Year ending 30th September; and* BIRTHS *and* DEATHS *in the Year ending 31st December*, 1880, *as Registered Quarterly.*

1	2	3	4	5	6	7
DIVISIONS. (England and Wales.)	AREA* in Statute Acres.	POPULATION, 1871. (*Persons.*)	MARRIAGES in Quarters ending			
			31st December, 1879.	31st March, 1880.	30th June, 1880.	30th September, 1880.
		No.	No.	No.	No.	No.
NGLD. & WALES....*Totals*	37,319,221	22,712,266	54,309	41,202	45,851	47,662
I. London	75,362	3,254,260	9,515	7,122	7,923	9,244
II. South-Eastern	3,994,431	2,167,726	5,291	3,274	3,947	4,297
II. South Midland	3,201,325	1,442,654	3,176	1,815	2,147	2,346
IV. Eastern	3,211,441	1,218,728	3,253	1,781	1,772	1,940
V. South-Western	4,981,170	1,880,777	3,384	2,810	3,010	2,976
VI. West Midland	3,945,460	2,721,931	6,144	4,750	5,109	5,220
II. North Midland........	3,535,445	1,406,935	3,372	2,486	3,002	2,616
II. North-Western........	1,998,914	3,389,044	8,093	7,292	7,950	8,395
X. Yorkshire	3,702,384	2,444,762	5,948	4,977	5,062	5,374
X. Northern	3,547,947	1,365,041	2,981	2,702	3,094	2,752
XI. Monmthsh. & Wales	5,125,342	1,420,408	3,152	2,193	2,835	2,502

8	9	10	11	12	13	14	15	16
DIVISIONS. (England and Wales.)	BIRTHS in each Quarter of 1880 ending				DEATHS in each Quarter of 1880 ending			
	31st March.	30th June.	30th September.	31st December.	31st March.	30th June.	30th September.	31st December.
	No.	No.	No.	No.	No.	No.	No.	No.
NGLD. & WALES....*Totals*	221,605	232,506	218,766	207,643	145,704	125,196	131,030	126,126
I. London	34,493	33,789	32,192	31,699	24,884	17,706	19,426	19,112
II. South-Eastern	19,598	19,880	19,288	18,312	12,697	10.011	10,683	10,060
III. South Midland........	12,727	13.380	12,742	12,031	8,347	6.714	6,965	6,917
IV. Eastern	11,171	11,336	10,798	10,467	7,001	6,043	6,428	6,095
V. South-Western	14,356	14,901	13,792	12,817	10,809	8,841	7,761	8.268
VI. West Midland	26,105	28,043	25,523	24,540	16,174	13,979	14,267	13,902
II. North Midland........	14,123	15,402	14,201	13,477	8,503	7,470	8,436	8,090
III. North-Western........	37,971	38,817	36,564	34.304	23,926	22,769	24,780	22,661
IX. Yorkshire	24,567	26,898	25,507	24,372	15,807	14,540	16,063	14,681
X. Northern	13,908	15,979	15,009	14,001	8,641	8,698	9,226	8,598
XI. Monmthsh. & Wales	12,586	14,081	13,150	11,623	8,915	8,425	6,995	7,742

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* These are revised figures, and will be found to differ somewhat from those first ublished.

G.—*General Meteorological Table,*

[Abstracted from the particulars supplied to the

1880.	Temperature of										Elastic Force of Vapour.		Weight of Vapour in a Cubic Foot of Air.	
	Air.			Evaporation.		Dew Point.		Air—Daily Range.		Water of the Thames				
Months.	Mean.	Diff. from Average of 109 Years.	Diff. from Average of 39 Years.	Mean.	Diff. from Average of 39 Years.	Mean.	Diff. from Average of 39 Years.	Mean.	Diff. from Average of 39 Years.		Mean.	Diff. from Average of 39 Years.	Mean.	Diff. from Average of 39 Years.
	°	°	°	°	°	°	°	°	°		In.	In.	Grs.	Gr.
Jan.......	33·2	−3·3	−5·4	31·9	−5·2	29·5	−5·5	9·6	0·0	—	·163	−·038	1·9	−0·5
Feb.......	41·8	+3·1	+2·4	40·3	+2·7	38·5	+3·4	11·4	+0·2	—	·233	+·026	2·7	+0·3
Mar. ...	44·3	+3·2	+2·7	41·8	+2·5	38·9	+2·7	16·2	+1·6	—	·238	+·023	2·7	+0·1
Means...	39·8	+1·0	−0·1	38·0	0·0	35·6	+0·2	12·4	+0·6	—	·211	+·004	2·4	0·0
April ...	47·1	+1·0	0·0	44·1	+0·1	40·7	+0·2	16·0	−2·5	—	·254	+·001	2·9	−0·1
May......	52·6	+0·1	0·0	48·3	−0·5	44·0	−1·1	21·8	+1·4	—	·288	−·010	3·3	−0·2
June ...	57·5	−0·7	−1·5	54·5	−0·1	51·7	+1·1	18·6	−2·5	—	·384	+·014	4·3	+0·1
Means...	52·4	+0·1	−0·5	49·0	−0·2	45·5	+0 1	18·8	−1·2	—	·309	+·002	3·5	−0·1
July......	61·7	+0·1	−0·4	58·4	+0·7	55·5	+1·6	19·1	−1·9	—	·441	+·024	4·9	+0·2
Aug. ...	62·8	+1·9	+1·3	60·0	+2·6	57·7	+3·8	17·1	−2·7	—	·477	+·059	5·2	+0·6
Sept. ...	59·7	+3·2	+2·6	57·1	+3·2	54·8	+3·8	17·5	−0·9	—	·430	+·052	4·8	+0·6
Means...	61·4	+1·7	+1·2	58·5	+2·2	56·0	+3·1	17·9	−1·8	—	·449	+·045	5·0	+0·5
Oct.......	46·2	−3·4	−4·0	44·9	−3·2	43·4	−2·6	13·1	−1·6	—	·281	−·032	3·2	−0·4
Nov. ...	42·5	+0·2	−0·9	40·5	−0·7	38·1	−1·2	12·0	+0·5	—	·230	−·015	2·7	−0·1
Dec. ...	43·2	+4·2	+3·1	41·7	+3·3	39·8	+3·3	9·8	+0·4	—	·245	+·027	2·8	+0·3
Means...	44·0	+0·3	−0·6	42·4	−0·2	40·4	−0·2	11·6	−0·2	—	·252	−·007	2·9	−0·1

Note.—In reading this table it will be borne in mind that the sign (−) minus signifies

At *Greenwich* the *mean temperature* of October was lower than that of September by 13°·5, that of November was lower than that of October by 3°·7, and that of December was higher than that of November by 0°·7. (From the preceding 39 years' observations the *mean temperature* of October is lower than that of September by 6°·9, that of November is lower than that of October by 6°·8, and that of December is lower than that of November by 3°·6.)

The decrease of *mean temperature* from September to October from all stations was 12°·7, the decrease from October to November was 3°·2, and from November to December there was a slight increase of mean temperature at stations south of lat. 52½°, and a slight decrease at stations north of this parallel.

The mean temperature of the air for October was 46°·2, being 3°·4 and 4°·0, respectively, above the averages of the preceding 109 years, and 39 years. Back to 1771 there are but seven instances of so low a mean temperature for October.

for the Year ended 31st December, 1880.

Registrar-General by JAMES GLAISHER, ESQ., F.R.S., &c.]

Degree of Humidity.		Reading of Barometer.		Weight of a Cubic Foot of Air.		Rain.		Daily Horizontal Movement of the Air.	Reading of Thermometer on Grass.					1880. Months.
									Number of Nights it was			Lowest Reading at Night.	Highest Reading at Night.	
Mean.	Diff. from Average of 39 Years	Mean.	Diff. from Average of 39 Years.	Mean.	Diff. from Average of 39 Years.	Amnt.	Diff. from Average of 65 Years.		At or below 30°.	Between 30° and 40°.	Above 40°.			
		In.	In.	Grs.	Grs.	In.	In.	Miles.				°	°	
86	− 1	30·204	+ ·448	568	+15	0·3	−1·6	179	24	6	1	13·5	49·1	January
89	+ 4	29·634	− ·156	548	− 5	2·3	+0·8	346	13	12	4	18·0	46·9	Feb.
81	− 1	29·937	+ ·195	551	+ 1	0·6	+1·0	321	14	14	3	18·0	47·1	March
85	+ 1	29·925	+ ·162	556	+ 4	Sum 3·2	Sum −1·8	Mean 282	Sum 51	Sum 32	Sum 8	Lowest 13·5	Highst 49·1	Means
79	+ 1	29 701	− ·054	543	0	2·2	+0·4	333	6	20	4	26·4	45·5	April
73	− 3	29·910	+ ·127	541	0	0·5	−1·6	281	11	12	8	22·8	47·0	May
82	+ 8	29·733	− ·075	531	− 1	2·3	+0·3	252	0	6	24	30·5	53·2	June
78	+ 2	29·781	− ·001	538	0	Sum 5·0	Sum −0·9	Mean 289	Sum 17	Sum 38	Sum 36	Lowest 22·8	Highst 53·2	Means
81	+ 6	29·727	− ·073	527	− 1	3·8	+1·3	258	0	0	31	41·8	56·8	July
83	+ 6	29·818	+ ·035	527	− 1	1·0	−1·5	235	0	1	30	39·0	60·3	August
84	+ 3	29 805	·000	530	− 3	4·0	+1·6	299	0	4	26	37·2	58·0	Sept.
83	+ 5	29·783	− ·013	528	− 2	Sum 8·8	Sum +1·4	Mean 264	Sum 0	Sum 5	Sum 87	Lowest 37·2	Highst 60·3	Means
91	+ 4	29·705	− ·001	544	+ 5	7·7	+5·0	269	8	16	7	24·0	49·2	October
85	− 3	29·793	+ ·047	550	+ 2	2·1	−1·3	351	14	12	4	16·3	50·8	Nov.
89	+ 1	29·748	− ·047	548	− 4	3·0	+1·0	352	10	16	5	22·7	46·6	Dec.
88	+ 1	29·749	·000	547	+ 1	Sum 12·8	Sum +5·7	Mean 324	Sum 32	Sum 44	Sum 16	Lowest 16·3	Highst 50·8	Means

below the average, and that the sign (+) plus signifies above the average.

The mean temperature of the air for November was 42°·5, being 0°·2 above the average of the preceding 109 years, and 0°·9 below the average of the preceding 39 years.

The mean temperature of the air for December was 43°·2, being 4°·2 and 3°·1, respectively, above the averages of the preceding 109 years, and 39 years.

The mean temperature of the air for the quarter was 44°·0, being 0°·3 above and 0°·6 below the averages of the preceding 109 years, and 39 years.

The mean high day temperature of the air was 5°·1, and 0°·2, respectively, below the average in October and November, but 3°·0 above in December.

The mean low night temperature of the air was 3°·4 and 0°·7 respectively, below the average in October and November, but 2°·8 above in December. Therefore the days and nights were cold in October and November, and warm in December.

No. II.—SCOTLAND.

BIRTHS, DEATHS, AND MARRIAGES, IN THE YEAR ENDED 31ST DECEMBER, 1880.

I.—*Serial Table:—Number of* BIRTHS, DEATHS, *and* MARRIAGES *in Scotland, and their Proportion to the Population estimated to the Middle of each Year, during each Quarter of the Years* 1880-76 *inclusive.*

	1880.		1879.		1878.		1877.		1876.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
1st Quarter—										
Births	31,319	3·42	31,268	3·45	31,226	3·48	31,256	3·51	32,333	3·67
Deaths........	20,751	2·37	21,950	2·42	20,320	2·26	20,525	2·81	21,294	2·41
Marriages ..	6,006	0·66	5,828	0·64	6,068	0·68	5,977	0·67	6,663	0·75
Mean Temperature	39°·9		34°·2		39°·9		38°·5		37°·9	
2nd Quarter—										
Births	33,827	3·70	32,968	3·64	33,629	3·74	33,355	3·75	33,088	3·75
Deaths........	19,711	2·15	18,784	2·04	19,514	2·17	19,586	2·20	19,270	2·18
Marriages ..	6,224	0·66	6,050	0·67	6,095	0·68	6,735	0·76	6,459	0·73
Mean Temperature	49°·5		46°·8		50°·4		47°·5		49°·2	
3rd Quarter—										
Births	30,179	3·30	31,436	3·47	31,236	3·48	30,988	3·45	30,790	3·49
Deaths........	17,047	1·86	15,115	1·67	17,344	1·93	15,919	1·79	16,465	1·87
Marriages ..	5,500	0·60	5,061	0·56	5,508	0·61	5,694	0·64	5,895	0·67
Mean Temperature	57°·1		54°·1		57°·5		54°·0		56°·0	
4th Quarter—										
Births	29,327	3·20	30,064	3·32	30,616	3·41	31,225	3·51	30,538	3·46
Deaths........	18,286	2·00	17,480	1·93	19,597	2·18	17,916	2·01	17,093	1·94
Marriages ..	6,759	0·74	6,523	0·72	6,662	0·74	7,384	0·83	7,546	0·83
Mean Temperature	39°·2		40°·4		39°·2		42°·8		43°·5	
Year—										
Population.	3,661,292		3,627,453		3,593,929		3,560,715		3,527,811	
Births	124,652	3·40	125,736	3·46	126,707	3·53	126,824	3·56	126,749	3·59
Deaths........	75,795	2·07	73,329	2·02	76,775	2·14	73,946	2·08	74,122	2·10
Marriages ..	24,489	0·67	23,462	0·65	24,333	0·68	25,790	0·72	26,563	0·75

II.—*Special Average Table:—Number of Births, Deaths, and Marriages in Scotland and in the Town and Country Districts for each Quarter of the Year ending* 31*st December*, **1880**, *and their Proportion to the Population; also the Number of Illegitimate Births, and their Proportion to the Total Births.*

Registration Groups of Districts.	Total Births.			Illegitimate Births.			Deaths.			Marriages.		
	Number	Per Cent.	Ratio. One in every	Number	Per Cent.	Ratio. One in every	Number.	Per Cent.	Ratio. One in every	Number.	Per Cent.	Ratio. One in every
1st Quarter—												
SCOTLAND	31,319	3·42	29	2,701	8·6	11·6	20,751	2·27	44	6,006	0·66	152
Principal towns	10,848	3·35	30	875	8·1	12·0	7,745	2·40	42	2,446	0·76	131
Large "	3,879	4·10	24	263	6·8	14·7	2,701	2·86	35	747	0·79	127
Small "	7,605	3·72	27	629	8·3	12·0	4,833	2·36	42	1,358	0·66	152
Mainland rural	8,220	3·14	32	884	10·8	9·3	4,898	1·87	53	1,244	0·48	208
Insular "	767	2·50	40	50	6·5	15·4	574	1·87	53	211	0·69	145
2nd Quarter—												
SCOTLAND	33,827	3·70	27	2,823	8·3	12·0	19,711	2·15	46·4	6,224	0·68	147
Principal towns	11,747	3·64	27	933	7·9	12·6	7,532	2·33	42·9	2,497	0·77	129
Large "	4,391	4·63	22	296	6·8	14·8	2,547	2·69	37·1	770	0·81	123
Small "	8,009	3·91	26	641	8·0	12·5	4,449	2·18	46·0	1,379	0·67	148
Mainland rural	8,882	3·40	29	903	10·2	9·8	4,634	1·77	56·4	1,494	0·57	175
Insular "	798	2·50	40	50	6·3	16·0	549	1·72	58·2	84	0·26	380
3rd Quarter—												
SCOTLAND	30,179	3·30	30	2,424	8·03	12·5	17,047	1·86	53·8	5,500	0·60	167
Principal towns	10,267	3·18	31	831	8·1	12·3	6,318	1·96	51·0	2,392	0·74	135
Large "	3,766	3·98	25	227	6·0	16·7	2,203	2·33	42·9	762	0·81	123
Small "	7,311	3·58	28	529	7·2	13·9	4,063	1·99	50·3	1,266	0·62	161
Mainland rural	7,976	3·05	33	788	9·9	10·1	3,998	1·53	65·4	1,023	0·39	256
Insular "	859	2·69	37	49	5·7	17·5	465	1·46	68·5	57	0·18	556
4th Quarter—												
SCOTLAND	29,327	3·20	31	2,550	8·7	11·5	18,286	2·00	50	6,759	0·74	135
Principal towns	10,012	3·10	32	836	8·3	12·0	7,247	2·24	45	2,439	0·76	132
Large "	3,710	3·92	25	250	6·7	14·8	2,384	2·52	40	807	0·85	117
Small "	6,959	3·40	29	582	8·4	12·0	4,140	2·02	49	1,541	0·75	133
Mainland rural	7,749	2·96	34	832	10·7	9·3	4,028	1·54	65	1,789	0·68	146
Insular "	897	2·81	36	50	5·6	17·9	487	1·52	66	183	0·57	175

Population of Scotland.

Population.	Scotland.	Principal Towns.	Large Towns.	Small Towns.	Mainland Rural.	Insular Rural.
By Census of 1871	3,360,018	1,079,211	318,740	767,487	1,062,576	132,004
Estimated to the middle of 1880	3,661,292	1,291,532	378,270	817,964	1,045,782	127,744

III.—*Bastardy Table:—Proportion of* ILLEGITIMATE *in every Hundred* BIRTHS *in the Divisions and Counties of* SCOTLAND, *during each quarter of the Year ending* 31*st December*, **1880**; *with the Corresponding Figures for* **1879** *added for Comparison.*

Divisions and Counties.	Per Cent. for the Quarters ending 1880.				Per Cent. for the Quarters ending 1879.			
	31st March.	30th June.	30th Sept.	31st Dec.	31st March.	30th June.	30th Sept.	31st Dec.
SCOTLAND	8·6	8·3	8·03	8·7	8·6	7·9	8·7	8·67
Divisions—								
Northern	8·5	6·8	8·4	6·6	7·0	7·2	5·6	6·1
North-Western........	5·7	6·5	6·3	7·4	6·6	5·5	6·0	6·0
North-Eastern	15·3	13·9	13·1	16·0	15·1	12·9	14·0	14·1
East Midland	9·0	8·9	9·0	8·7	8·3	8·8	9·5	9·5
West Midland	7·1	5·2	5·9	6·5	6·8	5·8	6·7	7·7
South-Western........	7·1	6·8	6·4	7·0	7·0	6·6	7·5	7·1
South-Eastern	7·3	7·5	7·3	7·8	8·1	7·5	7·5	7·6
Southern	13·9	14·9	13·6	14·4	14·6	11·3	13·9	14·3
Counties—								
Shetland	6·4	4·3	4·9	6·3	4·0	2·2	3·0	3·9
Orkney	11·0	4·8	4·7	7·6	3·6	6·0	5·7	6·0
Caithness................	10·2	10·9	13·9	10·4	11·4	10·8	7·0	7·6
Sutherland	3·8	5·6	6·4	5·3	6·8	6·7	5·9	6·3
Ross and Cromarty	4·5	5·9	4·0	5·1	4·0	4·1	5·5	3·9
Inverness	6·8	6·8	8·6	9·3	9·2	6·5	6·5	8·0
Nairn	10·9	6·8	13·0	9·3	9·3	3·0	9·6	6·1
Elgin	19·1	13·8	13·8	21·1	13·8	13·9	11·9	15·6
Banff	15·4	17·0	14·8	15·4	18·2	15·0	18·0	14·6
Aberdeen................	15·2	13·7	12·4	16·2	14·6	13·1	13·1	13·8
Kincardine	11·9	11·5	14·9	10·0	16·9	9·5	16·8	15·5
Forfar	10·5	9·0	10·4	9·7	9·8	10·2	11·4	11·3
Perth	9·6	8·9	10·8	9·7	8·3	9·7	8·5	9·4
Fife	6·5	8·0	6·0	6·3	6·9	6·5	7·2	6·6
Kinross	4·5	15·6	10·0	8·7	2·7	5·4	10·6	14·6
Clackmannan	7·7	9·8	5·4	9·7	7·5	5·6	6·5	7·7
Stirling	8·3	5·8	6·3	6·7	6·3	6·0	5·8	8·1
Dumbarton	3·7	5·7	5·3	4·7	5·3	5·1	5·9	6·1
Argyll	9·1	6·2	6·6	8·8	9·5	6·2	10·0	9·5
Bute	6·7	9·4	3·5	5·5	8·0	5·1	4·5	6·8
Renfrew	6·4	6·7	5·5	6·0	5·4	6·5	6·5	5·9
Ayr	8·1	6·2	8·1	9·5	8·0	7·1	8·1	7·5
Lanark	7·0	6·9	6·2	6·6	7·2	6·5	7·6	7·4
Linlithgow	7·6	8·8	7·8	15·3	8·4	7·9	8·6	8·2
Edinburgh	7·0	7·0	6·9	8·3	8·0	7·4	7·1	7·1
Haddington	6·7	9·0	4·3	3·8	7·4	7·8	8·6	5·4
Berwick	10·5	7·9	10·4	11·0	9·3	6·9	8·3	10·9
Peebles	7·4	11·9	13·1	15·8	12·7	6·0	6·4	9·6
Selkirk	8·1	9·0	9·4	15·4	7·5	8·3	10·4	10·1
Roxburgh	12·0	11·1	9·2	11·7	12·9	10·0	12·4	12·3
Dumfries................	13·8	15·3	12·4	13·5	14·6	11·5	14·1	16·6
Kirkcudbright	15·0	16·6	17·4	14·4	13·4	11·2	14·9	14·4
Wigtown................	15·8	17·4	18·1	19·6	17·7	13·1	14·6	12·7

IV.—*Divisional Table:*—MARRIAGES, BIRTHS, *and* DEATHS *Registered in the Year ended* 31*st December*, 1880.

(Compiled from the Registrar-General's Quarterly Returns.)

1 DIVISIONS. (Scotland)	2 AREA in Statute Acres.	3 POPULATION, 1871. (*Persons.*)	4 Marriages.	5 Births.	6 Deaths.
		No.	No.	No.	No.
SCOTLAND .... *Totals*	19,639,377	3,360,018	24,489	124,652	75,795
I. Northern	2,261,622	127,191	545	3,020	2,000
II. North-Western........	4,739,876	166,351	727	4,410	2,619
III. North-Eastern	2,429,594	393,199	2,544	13,394	6,953
IV. East Midland	2,790,492	559,676	3,723	18,810	11,733
V. West Midland	2,693,176	251,088	1,568	9,110	5,471
VI. South-Western........	1,462,397	1,183,218	10,317	50,735	32,143
VII. South-Eastern	1,192,524	475,523	3,898	18,528	11,211
VIII. Southern	2,069,696	203,772	1,167	6,345	3,665

No. III.—GREAT BRITAIN AND IRELAND.

SUMMARY *of* MARRIAGES, *in the Year ended* 30*th September*, 1880; *and of* BIRTHS *and* DEATHS, *in the Year ended* 31*st December*, 1880.

(Compiled from the Quarterly Returns of the respective Registrars-General.)

COUNTRIES.	[000's omitted.]		Marriages.	Per 1,000 of Population.	Births.	Per 1,000 of Population.	Deaths.	Per 1,000 of Population.
	Area in Statute Acres.	Population, 1871. (*Persons.*)						
		No.	No.	Ratio.	No.	Ratio.	No.	Ratio.
England and Wales	37,319,	22,712,	189,024	8·3	880,520	38·7	528,056	23·3
Scotland	19,639,	3,360,	24,253	7·2	124,652	37·1	75,795	22·6
Ireland	20,323,	5,412,	20,625	3·8	128,010	24·0	102,955	19·3
GREAT BRITAIN AND IRELAND	77,281,	31,484,	233,902	7·4	1,133,182	36·0	706,806	22·4

Note.—The numbers against Ireland represent the marriages, births, and deaths that the local registrars have *succeeded* in recording; but how far the registration approximates to absolute completeness, does not at present appear to be known. It will be seen that the Irish ratios of marriages, births, and deaths are much under those of England and Scotland.—ED. *S. J.*

Trade of United Kingdom, for the Years 1879-75.—*Declared Value of the Total Exports of* **Foreign** *and* **Colonial** *Produce and Manufactures to each Foreign Country and British Possession.*

Merchandise Exported to the following Foreign Countries, &c.	[000's omitted.] 1879.	1878.	1877.	1876.	1875.
I.—Foreign Countries.	£	£	£	£	£
Northern Europe; viz., Russia, Sweden, Norway, Denmark, & Iceland, & Heligoland	4,742,	4,799,	4,587,	4,951,	5,478,
Central Europe; viz., Germany, Holland and Belgium	23,913,	20,715,	22,182,	23,543,	25,842,
Western Europe; viz., France, Portugal, (with Azores, Madeira, &c.), and Spain, (with Gibraltar and Canaries)	13,061,	12,973,	12,789,	14,343,	13,509,
Southern Europe; viz., Italy, Austrian Empire, Greece, Ionian Islands, and Malta	1,616,	1,766,	1,773,	2,066,	2,056,
Levant; viz., Turkey, Roumania,* Syria and Palestine, and Egypt	662,	737,	474,	593,	655,
Northern Africa; viz., Tripoli, Tunis, Algeria, and Morocco	74,	178,	77,	76,	86,
Western Africa	221,	257,	299,	270,	259,
Eastern Africa; with African Ports on Red Sea, Aden, Arabia, Persia, Bourbon, and Kooria Mooria Islands	—	—	—	—	—
Indian Seas, Siam, Sumatra, Java, Philippines; other Islands	29,	328,	307,	183,	162,
South Sea Islands	—	—	—	—	—
China, including **Hong Kong** and Japan	1,030,	382,	344,	290,	407,
United States of America	5,197,	2,980,	3,509,	3,393,	3,194,
Mexico and Central America	98,	121,	119,	97,	125,
Foreign West Indies and Hayti	686,	689,	497,	595,	406,
South America (Northern), New Granada, Venezuela and Ecuador	37,	37,	33,	41,	58,
,, **(Pacific)**, Peru, Bolivia, Chili, and Patagonia	260,	323,	264,	297,	360,
,, **(Atlantic)**, Brazil, Uruguay, and Argentine Confed.	420,	755,	593,	406,	452,
Other countries (unenumerated)	108,	109,	150,	136,	79,
Total—Foreign Countries	52,172,	47,329,	47,997,	51,280,	53,128,
II.—British Possessions:					
British India, Ceylon, and Singapore	1,540,	1,536,	1,475,	1,433,	1,536,
Austral. Cols.—New South Wales and Victoria, So. Aus., W. Aus., Tasm., and N. Zealand	1,689,	1,952,	2,218,	1,788,	1,733,
British North America	674,	597,	642,	668,	646,
,, W. Indies with Btsh. Guiana & Honduras	291,	306,	328,	347,	361,
Cape and Natal	517,	546,	387,	315,	441,
Brt. W. Co. of Af., Ascension and St. Helena	102,	99,	82,	84,	94,
Mauritius	25,	22,	106,	22,	26,
Channel Islands	214,	198,	184,	170,	150,
Other possessions	27,	50,	34,	30,	31,
Total—British Possessions	5,080,	5,306,	5,456,	4,857,	5,018,
General Total £	57,272,	52,635,	53,453,	56,137,	58,146,

* Wallachia and Moldavia to 1878, and Roumania in 1879.

Trade of United Kingdom, 1880-79-78.—*Distribution of* **Exports*** *from United Kingdom, according to their Declared Real Value; and the Declared Real Value (Ex-duty) of* **Imports** *at Port of Entry, and therefore including Freight and Importer's Profit.*

[000's omitted.]

Merchandise (*excluding Gold and Silver*) Imported from, and Exported to, the following Foreign Countries, &c.	1880.		1879.		1878.	
	Imports from	*Exports to*	Imports from	*Exports to*	Imports from	*Exports to*
I.—Foreign Countries:	£	£	£	£	£	£
Northern Europe; viz., Russia, Sweden, Norway, Denmark & Iceland, & Heligoland	32,289,	13,044,	28,916,	11,814,	31,427,	10,859,
Central Europe; viz., Germany, Holland, and Belgium	61,513,	31,841,	54,362,	33,078,	57,134,	34,275,
Western Europe; viz., France, Portugal (with Azores, Madeira, &c.), and Spain (with Gibraltar and Canaries)	57,032,	21,936,	50,589,	20,804,	54,326,	21,128,
Southern Europe; viz., Italy, Austrian Empire, Greece, Roumania, and Malta....	7,963,	8,791,	8,306,	8,522,	6,825,	8,251,
Levant; viz., Turkey, Asiatic and European (including Cyprus), and Egypt	12,927,	9,827	12,267,	9,325,	11,803,	10,841,
Northern Africa; viz., Tripoli, Tunis, Algeria and Morocco	1,589,	607,	1,035,	502,	1,089,	406,
Western Africa	1,896,	991,	1,436,	836,	1,269,	1,174,
Eastern Africa; with African Ports on Red Sea, Aden, Arabia, Persia, Bourbon, and Kooria Mooria Islands	714,	629,	454,	1,066,	538,	455,
Indian Seas, Siam, Sumatra, Java, Philippines; other Islands	4,384,	3,075,	3,320,	2,297,	3,111,	2,563,
South Sea Islands	122,	84,	167,	168,	116,	81,
China and Japan, including **Hong Kong**	13,585,	12,138,	12,844,	10,238,	15,426,	9,212,
United States of America	106,947,	30,877,	90,896,	20,595,	89,071,	14,621,
Mexico and Central America	1,942,	1,881,	1,965,	1,407,	1,500,	1,503,
Foreign West Indies, Hayti, &c.	2,129,	2,637,	3,294,	2,525,	2,217,	2,836,
South America (Northern), New Granada, Venezuela, and Ecuador	1,685,	1,825,	1,562,	1,624,	1,164,	1,705,
" **(Pacific)**, Peru, Bolivia, Chili, and Patagonia	6,409,	2,313,	7,379,	1,749,	7,957,	2,634,
" **(Atlantic)** Brazil, Uruguay, and Argentine Republic	6,869,	10,497,	5,974,	8,661,	6,375,	8,891,
Whale Fisheries; Grnlnd., Davis' Straits, Southn. Whale Fishery, & Falkland Islands	216,	25,	153,	12,	170,	22,
Total—Foreign Countries	320,211,	153,018,	284,919,	135,223,	291,518,	131,457,
II.—British Possessions:						
British India, Ceylon, and Singapore	37,371,	33,722,	31,024,	24,201,	32,975,	25,853,
Austral. Cols.—N. So. W., Victoria & Queensld.	15,934,	11,149,	13,638,	10,080,	13,029,	12,480,
" " So. Aus., W. Aus., Tasm., N. Zealand, & Fiji Islands	9,731,	5,797,	8,291,	6,178,	7,795,	7,089,
British North America	13,214,	7,698,	10,569,	5,555,	9,441,	6,412,
" W. Indies with Btsh. Guiana & Honduras	6,750,	3,042,	7,303,	2,812,	6,334,	2,761,
Cape and Natal	5,643,	6,629,	4,570,	5,844,	4,383,	4,911,
Brt. W. Co. of Af., Ascension and St. Helena	804,	819,	586,	767,	624,	897,
Mauritius	288,	358,	642,	345,	889,	409,
Channel Islands	817,	585,	738,	599,	946,	535,
Total—British Possessions	90,560,	69,783,	77,361,	56,281,	76,416,	61,347,
General Total £	410,771,	222,810,	362,280,	191,504,	367,934,	192,804,

* *i.e.*, British and Irish produce and manufactures.

IMPORTS.—(United Kingdom.)—**For the Years 1880-79-78-77-76.**—*Declared Real Value (Ex-duty), at Port of Entry (and therefore including Freight and Importer's Profit), of Articles of Foreign and Colonial Merchandise Imported into the United Kingdom.*

[000's omitted.]

FOREIGN ARTICLES IMPORTED.		1880.	1879.	1878.	1877.	1876.
		£	£	£	£	£
RAW MATLS.–*Textile*, &c.	Cotton Wool	42,765,	36,279,	33,524,	35,489,	40,347,
	Wool	28,356,	24,930,	24,589,	26,310,	24,980,
	Silk*..................	17,461,	16,825,	16,867,	17,733,	18,186,
	Flax	4,070,	3,581,	3,483,	5,055,	3,537,
	Hemp	5,894,	4,943,	5,156,	4,973,	4,755,
	Indigo	1,698,	1,901,	1,583,	1,636,	2,130,
		100,244,	88,459,	85,202,	91,196,	93,935,
,, ,, *Various.*	Hides	6,911,	5,109,	6,266,	6,495,	6,273,
	Oils	3,418,	3,477,	3,184,	4,200,	4,786,
	Metals	15,794,	10,619,	10,632,	11,569,	10,252,
	Tallow	2,310,	2,100,	1,811,	2,570,	2,874,
	Timber...............	16,583,	10,726,	13,915,	20,191,	19,025,
		45,016,	32,031,	35,808,	45,025,	43,210,
,, ,, *Agrcltl.*	Guano	805,	704,	1,805,	1,667,	2,462,
	Seeds	7,597,	7,098,	8,690,	9,139,	8,970,
		8,402,	7,802,	10,495,	10,806,	11,432,
TROPICAL, &c., PRODUCE.	Tea	11,752,	11,373,	13,097,	12,482,	12,813,
	Coffee	7,062,	7,324,	6,093,	7,852,	6,413,
	Sugar & Molasses	22,970,	22,351,	21,107,	27,277,	20,620,
	Tobacco	2,901,	1,975,	3,718,	3,539,	3,946,
	Rice	3,750,	3,481,	3,192,	3,507,	2,927,
	Fruits	3,288,	3,794,	3,509,	4,334,	3,839,
	Wines	6,483,	5,380,	6,003,	7,156,	7,020,
	Spirits	1,979,	2,895,	2,209,	2,256,	3,963,
		60,185,	58,573,	58,928,	68,403,	61,541,
FOOD	Grain and Meal.	62,369,	60,596,	58,373,	63,210,	51,550,
	Provisions	43,438,	35,901,	35,951,	33,241,	32,837,
		105,807,	96,497,	94,324,	96,451,	84,387,
Remainder of Enumerated Articles		48,582,	41,955,	43,253,	42,560,	41,199,
TOTAL ENUMERATED IMPORTS		368,240,	325,317,	328,010,	354,441,	335,704,
Add for UNENUMERATED IMPORTS (say)		41,750,	36,810,	38,050,	39,500,	38,300,
TOTAL IMPORTS		409,990,	362,127,	366,060,	393,941,	374,004,

* "Silk," inclusive of manufactured silk, "not made up."

EXPORTS.—(United Kingdom.)—**For the Years 1880-79-78-77-76.**—*Declared Real Value, at Port of Shipment, of Articles of* BRITISH *and* IRISH *Produce and Manufactures Exported from the United Kingdom.*

[000's omitted.]

BRITISH PRODUCE, &c., EXPORTED.		1880.	1879.	1878.	1877.	1876.
		£	£	£	£	£
MANFRS.—*Textile.*	Cotton Manufactures..	63,657,	51,843,	52,903,	56,954,	54,851,
	,, Yarn	11,906,	12,103,	13,006,	12,209,	12,783,
	Woollen Manufactures	17,270,	15,851,	16,723,	17,335,	18,620,
	,, Yarn	3,344,	3,714,	3,910,	3,609,	4,417,
	Silk Manufactures........	2,029,	1,696,	1,921,	1,707,	1,769,
	,, Yarn	685,	694,	564,	572,	1,073,
	Linen Manufactures	5,826,	5,474,	5,526,	5,830,	5,621,
	,, Yarn	978,	1,075,	1,213,	1,291,	1,460,
		105,695,	92,450,	95,766,	99,507,	100,594,
,, *Sewed.*	Apparel	3,194,	3,198,	3,155,	2,833,	2,962,
	Haberdy. and Mllnry.	3,869,	3,487,	3,966,	3,803,	3,771,
		7,063,	6,685,	7,121,	6,636,	6,733,
METALS, &c.	Hardware	3,512,	3,019,	3,290,	3,336,	3,481,
	Machinery	9,262,	7,283,	7,490,	6,683,	7,198,
	Iron	28,307,	19,439,	18,394,	20,095,	20,731,
	Copper and Brass........	3,638,	3,380,	3,522,	3,503,	3,401,
	Lead and Tin	984,	1,019,	1,057,	1,363,	1,202,
	Coals and Culm	8,379,	7,202,	7,321,	7,829,	8,901,
		54,082,	41,342,	41,074,	42,809,	44,914,
Ceramic Manufcts.	Earthenware and Glass	2,896,	2,526,	2,450,	2,614,	2,577,
Indigenous Mnfrs. and Products.	Beer and Ale................	1,730,	1,759,	1,762,	1,895,	1,922,
	Butter	201,	235,	243,	247,	210,
	Cheese	51,	55,	66,	72,	70,
	Candles	143,	136,	170,	196,	151,
	Salt................................	604,	552,	503,	463,	529,
	Spirits	532,	454,	390,	373,	312,
	Soda	—	—	—	—	—
		3,261,	3,191,	3,134,	3,246,	3,194,
Various Manufcts.	Books, Printed	971,	953,	891,	896,	877,
	Furniture	—	—	—	—	—
	Leather Manufactures	2,096,	2,058,	2,003,	1,995,	3,343,
	Soap	443,	433,	405,	365,	312,
	Plate and Watches	233,	213,	221,	218,	247,
	Stationery	723,	664,	647,	655,	659,
		4,466,	4,321,	4,167,	4,129,	5,438,
Remainder of Enumerated Articles		24,843,	22,936,	20,953,	22,509,	19,796,
Unenumerated Articles................................		20,505,	18,053,	18,139,	17,281,	17,330,
TOTAL EXPORTS....................		222,811,	191,504,	192,804,	198,731,	200,576,

SHIPPING.—(United Kingdom.)—*Account of Tonnage of Vessels Entered and Cleared with Cargoes, from and to Various Countries, during the* **Years** *ended December,* 1880-79-78.

Countries from whence Entered and to which Cleared.	Total British and Foreign.					
	1880.		1879.		1878.	
	Entered.	Cleared.	Entered.	Cleared.	Entered.	Cleared.
FOREIGN COUNTRIES.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Russia { Northern ports	60,334	18,837	56,565	16,109	64,117	21,214
Russia { Southern ,, ...	12,416	10,388	35,501	3,546	24,618	9,559
Sweden	62,190	37,313	50,261	47,034	52,434	31,679
Norway	32,931	36,142	22,523	46,025	29,482	32,247
Denmark	24,967	58,830	17,437	75,232	20,987	57,292
Germany	134,686	152,205	136,660	138,750	135,770	141,200
Holland	111,256	110,576	96,195	88,594	111,164	107,739
Belgium	82,131	91,435	44,409	54,345	69,445	71,239
France	162,663	330,163	159,115	290,455	169,677	277,954
Spain	160,141	76,312	110,894	69,837	99,124	61,704
Portugal	27,210	29,687	21,122	28,372	18,195	21,161
Italy	34,453	128,029	23,685	95,051	31,652	73,714
Austrian territories	1,937	5,013	2,529	6,909	4,398	4,897
Greece	11,266	7,540	9,917	4,157	10,039	6,592
Turkey	16,701	23,155	16,084	18,298	27,307	14,379
Roumania	22,817	—	1,219	—	—	—
Egypt	35,793	48,668	56,533	43,923	26,556	33,373
United States of America	427,107	317,604	497,656	294,722	355,761	192,167
Mexico, Foreign West Indies, and Central America	15,060	65,909	19,059	46,030	17,214	52,493
Brazil	22,543	31,505	14,495	35,413	12,131	32,994
Peru	7,991	2,349	4,760	1,550	10,291	4,164
Chili	10,715	15,632	14,965	14,721	5,359	10,244
China	16,069	2,229	14,773	2,190	16,100	882
Other countries	55,838	57,888	57,428	53,158	44,715	40,359
Total, Foreign Countries	1,545,228	1,657,409	1,483,785	1,474,421	1,356,536	1,299,246
BRITISH POSSESSIONS.						
North American Colonies	108,330	3,326	94,943	15,424	66,168	18,120
East Indies, including Ceylon, Singapore, and Mauritius	103,566	171,048	61,681	157,330	88,421	86,075
Australia and New Zealand	34,547	55,048	14,394	35,406	11,175	41,237
West Indies	5,891	17,574	6,813	21,815	2,833	13,781
Channel Islands	20,177	18,800	20,913	15,505	18,365	12,228
Other possessions	24,450	105,515	26,066	79,456	20,131	73,313
Total, British Possessions	296,961	371,311	224,810	324,936	207,093	244,754
TOTAL FOREIGN COUNTRIES AND BRITISH POSSESSIONS.						
Months ended December, { 1880	1,844,904	2,028,720	—	—	—	—
Months ended December, { '79	—	—	1,708,595	1,799,357	—	—
Months ended December, { '78	—	—	—	—	1,563,629	1,544,000

GOLD AND SILVER BULLION AND SPECIE.—(United Kingdom.) —*Declared Real Value of*, IMPORTED AND EXPORTED *for the* Years 1880-79-78.

[000's omitted.]

Countries.	1880.		1879.		1878.	
	Gold.	*Silver.*	Gold.	*Silver.*	Gold.	*Silver.*
Imported from—	£	£	£	£	£	£
Australia	3,614,	79,	3,152,	110,	5,681,	21,
S. America, Brazil, Mexico, & West Indies	853,	2,619,	1,374,	3,767,	1,591,	3,548,
United States	55,	1,199,	388,	2,596,	866,	1,616,
	4,522,	3,897,	4,914,	6,473,	8,138,	5,185,
France	2,118,	2,066,	2,903,	2,347,	5,908,	1,741,
Germany, Holland, Belg., and Sweden	1,030,	428,	853,	833,	2,019,	4,100,
Portugal, Spain, and Gibraltar	47,	37,	563,	274,	376,	77,
Malta and Egypt	60,	19,	409,	22,	1,578,	43,
China, including Hong Kong and Japan	1,195,	24,	809,	349,	430,	1,
West Coast of Africa	126,	63,	115,	62,	122,	41,
All other Countries	362,	295,	2,765,	374,	2,301,	361,
Totals Imported	9,459,	6,829,	13,331,	10,734,	20,872,	11,549,
Exported to—						
France	602,	173,	696,	723,	4,599,	2,191,
Germany, Holland, Belg. & Sweden	424,	770,	3,537,	1,871,	5,324,	1,645,
Portugal, Spain, and Gibraltar	1,021,	12,	859,	279,	1,316,	729,
	2,047,	955,	5,092,	2,873,	11,239,	4,565,
B. India, China, with Hong Kong and Japan	866,	5,447,	219,	6,574,*	233,	5,840,
United States	5,512,	34,	6,949,	614,	829,	1,083,
South Africa	—	85,	1,730,	24,	347,	—
S. America, Brazil, Mexico, & West Indies	1,749,	224,	1,072,	596,	809,	39,
All other Countries	1,654,	315,	2,517,	350,	1,512,	191,
Totals Exported	11,829,	7,061,	17,579,	11,031,	14,969,	11,718,
Excess of imports	—	—	—	—	5,903,	—
„ exports	2,370,	232,	4,248,	297,	—	169,

* This entry is now shown direct, instead of to Egypt as formerly.

BRITISH CORN.—*Gazette Average Prices* (ENGLAND AND WALES) *Weekly for* 1880.

[This Table is communicated by the Statistical and Corn Department, Board of Trade.]

Weeks ended on Saturday.	Weekly Average. (Per Imperial Quarter.)						Weeks ended on Saturday.	Weekly Average. (Per Imperial Quarter.)					
	Wheat.		Barley.		Oats.			Wheat.		Barley.		Oats.	
1880.	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	1880.	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
January 3	46	11	37	7	21	7	July 3	44	7	31	11	28	2
,, 10	46	2	36	8	20	11	,, 10	43	9	28	10	26	8
,, 17	45	11	37	2	21	1	,, 17	43	1	27	9	26	4
,, 24	45	7	37	3	20	10	,, 24	43	6	27	1	26	3
,, 31	45	3	36	4	21	11	,, 31	44	2	27	1	28	1
February 7	44	2	36	10	21	3	August 7	43	9	25	7	28	2
,, 14	43	7	36	10	21	1	,, 14	44	4	29	7	24	6
,, 21	43	1	35	11	22	2	,, 21	43	9	29	8	24	5
,, 28	43	–	35	2	22	3	,, 28	44	1	33	8	24	8
March 6	44	7	34	2	22	4	September 4	43	3	35	–	22	11
,, 13	44	8	34	10	22	3	,, 11	42	2	35	1	21	8
,, 20	46	1	34	11	23	3	,, 18	39	11	33	5	20	7
,, 27	47	3	34	5	22	10	,, 25	39	5	34	–	20	2
April 3	48	4	35	–	22	6	October 2	40	1	34	–	21	6
,, 10	48	2	33	9	23	5	,, 9	41	–	34	2	20	10
,, 17	47	11	33	8	24	6	,, 16	41	5	35	2	20	6
,, 24	48	1	32	8	24	11	,, 23	42	8	35	2	21	–
							,, 30	43	7	35	11	21	8
May 1	45	9	33	6	23	6							
,, 8	46	–	33	4	25	–	November 6	43	4	35	2	20	9
,, 15	44	9	32	2	24	11	,, 13	43	5	34	7	21	5
,, 22	44	8	32	8	25	5	,, 20	44	1	33	9	20	4
,, 29	44	11	30	4	25	1	,, 27	44	5	33	6	21	5
June 5	45	7	28	4	25	3	December 4	44	10	33	2	21	1
,, 12	44	11	32	–	26	5	,, 11	45	1	32	8	20	9
,, 19	45	4	30	9	26	10	,, 18	44	–	31	6	20	7
,, 26	44	8	28	3	26	9	,, 25	42	8	31	3	20	3

BRITISH CORN.—*Gazette Average Prices* (ENGLAND AND WALES), *Summary of, for* 1880, *with those for* 1879, *added for Comparison.*

[This Table is communicated by the Statistical and Corn Department, Board of Trade.]

Average for	Per Imperial Quarter, 1880.						Per Imperial Quarter, 1879.					
	Wheat.		Barley.		Oats.		Wheat.		Barley.		Oats.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
January	45	11	37	–	21	3	39	3	37	6	20	–
February	43	5	36	2	21	8	38	–	35	7	19	8
March	45	7	34	7	22	8	39	7	33	9	20	6
First quarter	45	1	36	–	21	9	39	–	35	6	20	1
April	48	1	33	9	23	10	41	–	31	8	20	9
May	45	2	32	4	24	9	40	11	29	7	21	10
June	45	1	29	10	26	3	41	9	27	2	22	4
Second quarter	46	1	32	–	24	11	41	2	29	6	21	8
July	43	9	28	6	27	1	44	6	26	4	22	10
August	43	11	29	7	25	5	49	1	29	5	23	9
September	41	2	34	4	21	4	47	5	38	8	24	9
Third quarter	43	–	30	8	24	9	47	2	31	4	23	9
October	41	9	34	10	21	1	48	10	40	9	22	5
November	43	9	34	3	20	11	48	9	40	–	21	4
December	44	1	32	1	20	8	46	7	38	3	21	1
Fourth quarter	43	1	33	10	20	11	48	1	39	8	21	7
THE YEAR	44	4	33	1	23	1	43	10	34	–	21	9

REVENUE OF THE UNITED KINGDOM.

Net Produce in QUARTERS *and* YEARS *ended* 31*st* DEC., 1880-79-78-77.

[000's omitted.]

QUARTERS, ended 31st Dec.	1880.	1879.	1880.		Corresponding Quarters.	
			Less.	More.	1878.	1877.
	£	£	£	£	£	£
Customs	5,376,	5,356,	20,	—	5,484,	5,386,
Excise	6,700,	6,460,	240,	—	6,990,	6,855,
Stamps	3,105,	2,725,	380,	—	2,628,	2,735,
Taxes	35,	26,	9,	—	26,	46,
Post Office	1,677,	1,630,	47,	—	1,554,	1,577,
Telegraph Service	395,	365,	30,	—	325,	320,
		16,562,	726,	—	17,007,	16,919,
Property Tax	660,	486,	174,	—	440,	342,
		17,048,	900,	—	17,447,	17,261,
Crown Lands	135,	135,	—	—	141,	141,
Interest on Advances	404,	326,	78,	—	383,	337
Miscellaneous	1,053,	1,108,	—	55,	1,098,	644,
Totals	19,540,	18,617,	978,	55,	19,069,	18,383,
			NET INCR. £923,			

YEARS, ended 31st Dec.	1880.	1879.	1880.		Corresponding Years.	
			Less.	More.	1878.	1877.
	£	£	£	£	£	£
Customs	19,268,	19,750,	—	482,	20,165,	19,762,
Excise	25,770,	26,277,	946,	507,	27,372,	27,368,
Stamps	11,965,	11,019,	—	—	10,652,	10,968,
Taxes	2,719,	2,644,	75,	—	2,655,	2,636,
Post Office	6,570,	6,319,	251,	—	6,180,	6,133,
Telegraph Service	1,570,	1,375,	195,	—	1,330,	1,320,
		67,384,	1,467,	989,	68,354,	68,187,
Property Tax	9,495,	9,485,	10,	—	6,031,	5,736,
		76,869,	1,477,	989,	74,385,	73,923,
Crown Lands	390,	399,	—	9,	410,	410,
Interest on Advances	1,337,	1,127,	210,	—	1,047,	954,
Miscellaneous	4,206,	4,272,	—	66,	4,412,	3,393,
Totals	83,290,	82,667,	1,687,	1,064,	80,234,	78,680,
			NET INCR. £623,			

LONDON CLEARING; CIRCULATION, PRIVATE AND PROVINCIAL.

The London Clearing, and the Average Amount of Promissory Notes in Circulation in ENGLAND *and* WALES *on Saturday in each Week during the Year* 1880; *and in* SCOTLAND *and* IRELAND, *at the Dates, as under.*

[0,000's omitted.]

ENGLAND AND WALES.					SCOTLAND.				IRELAND.		
DATES. *Saturday.*	*London:* Cleared in each Week ended *Wednesday.**	Private Banks. (Fixed Issues, 3,55).	Joint Stock Banks. (Fixed Issues, 2,41).	TOTAL. (Fixed Issues, 5,96).	Weeks ended	£5 and upwards.	Under £5.	TOTAL. (Fixed Issues, 2,68).	£5 and upwards	Under £5.	TOTAL. (Fixed Issues, 6,35).
1880.	£	£	£	£	1880.	£	£	£	£	£	£
Jan. 3......	96,06	1,82	1,73	3,55							
„ 10......	103,99	1,88	1,79	3,68							
„ 17......	88,67	1,89	1,80	3,68	Jan. 17...	1,85	3,52	5,38	3,25	2,78	6,03
„ 24......	144,20	1,86	1,80	3,65							
„ 31......	88,28	1,83	1,76	3,59							
Feb. 7......	149.39	1,81	1,75	3,56							
„ 14......	92,81	1,77	1,74	3,51	Feb. 14...	1,75	3,37	5,12	3,22	2,65	5,87
„ 21......	147,28	1,76	1,72	3,48							
„ 28......	93,22	1,74	1,71	3,44							
Mar. 6......	156,89	1,74	1,72	3,46							
„ 13......	94,23	1,73	1,71	3,44	Mar. 13...	1,66	3,33	4,99	3,17	2,53	5,70
„ 20......	127,14	1,73	1,72	3,46							
„ 27......	100,94	1,79	1,77	3,56							
April 3......	66,67	1,86	1,81	3,67							
„ 10......	134,90	1,91	1,84	3,74	April 10...	1,66	3,39	5,04	3,37	2,56	5,93
„ 17......	96,94	1,91	1,85	3,76							
„ 24......	136,43	1,90	1,85	3,75							
May 1......	90,40	1,89	1,86	3,75							
„ 8......	149,13	1,89	1,86	3,76	May 8...	1,81	3,51	5,32	3,48	2,60	6,08
„ 15......	94.91	1,89	1,87	3.77							
„ 22......	123,77	1,86	1,79	3,65							
„ 29......	84,79	1,79	1,73	3,52							
June 5......	126,94	1,75	1,69	3.45	June 5...	2,26	3,95	6,21	3,38	2,55	5,93
„ 12......	94,65	1,72	1,66	3.38							
„ 19......	125,21	1,70	1,64	3,33							
„ 26......	88,56	1,69	1,62	3,31							
July 3......	131,43	1,71	1,63	3,34	July 3...	1,84	3,65	5,48	3,19	2,43	5,61
„ 10......	119.51	1,74	1,66	3.40							
„ 17......	124,76	1,75	1,64	3,39							
„ 24......	103,55	1,70	1,61	3,31							
„ 31......	82,26	1,66	1,59	3,25	„ 31...	4,74	3,61	5,34	3,21	2,45	5,66
Aug. 7......	123,81	1,66	1,59	3,26							
„ 14......	92,76	1,64	1,57	3,20							
„ 21......	116,40	1,61	1,55	3,17							
„ 28......	79,41	1,60	1,54	3,14	Aug. 28...	1,71	3,53	5,24	3,19	2,49	5,67
Sept. 4......	117,38	1,58	1,45	3,04							
„ 11......	87,27	1,62	1,57	3,19							
„ 18......	82,10	1,65	1,58	3.23							
„ 25......	111,14	1,67	1,61	3,28	Sept. 25...	1,77	3,63	5,40	3,32	2,67	6,00
Oct. 2......	82,45	1,76	1.67	3,43							
„ 9......	135,19	1,85	1,74	3,59							
„ 16......	93,37	1,89	1,76	3,65							
„ 23......	130,01	1,85	1,76	3,61	Oct. 23...	1,82	3,74	5,57	3,85	3,05	6,90
„ 30......	81,21	1,83	1,76	3,60							
Nov. 6......	141,44	5	1,79	3,64							
„ 13......	95,70	1, 4	1,77	3,61							
„ 20......	139,48	1,80	1.76	3,61	Nov. 20...	2,14	4,01	6,15	4,01	3,20	7,21
„ 27....	94,08	78	1,76	3,55							
Dec. 4......	91,93	77	1,74	3,50							
„ 11......	151,02	2	1,70	3,42							
„ 18......	96,32	71	1,68	3,39	Dec. 18...	2,07	3,95	6,02	3,85	3,20	7,05
„ 25......	142,96	73	1,58	3,30							

* The Wednesdays *preceding* the Saturdays.

BANK OF ENGLAND.

Pursuant to the Act 7th and 8th Victoria, cap. 32 (1844)

[0,000's omitted.]

1	2	3	4	5	6	7
Issue Department.					Collateral Columns.	
Liabilities.		Assets.				
Notes Issued.	Dates. (Wednesdays.)	Government Debt.	Other Securities.	Gold Coin and Bullion.	Notes in Hands of Public. (Col. 1 minus col. 16.)	Minimum Rates of Discount at Bank of England.
£ Mlns.	1880.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	1880. Per cnt.
41,49	Jan. 7	11,02	3,98	26,49	27,78	7 Jan. 3
41,54	„ 14	11,02	3,98	26,54	27,40	
41,83	„ 21	11,02	3,98	26,83	27,09	
42,10	„ 28	11,02	3,98	27,10	26,74	
41,90	Feb. 4	11,02	3,98	26,90	27,38	
42,15	„ 11	11,02	3,98	27,15	26,78	
42,13	„ 18	11,02	3,98	27,13	26,69	
42,08	„ 25	11,02	3,98	27,08	26,30	
42,20	Mar. 3	11,02	3,98	27,20	26,96	
42,27	„ 10	11,02	3,98	27,27	26,56	
42,53	„ 17	11,02	3,98	27,53	26,29	
42,73	„ 24	11,02	3,98	27,73	26,74	
42,39	„ 31	11,02	3,98	27,39	26,97	
41,99	April 7	11,02	3,98	26,99	27,36	
41,85	„ 14	11,02	3,98	26,85	27,32	
41,96	„ 21	11,02	3,98	26,96	27,12	
41,80	„ 28	11,02	3,98	26,80	27,15	
41,60	May 5	11,02	3,98	26,60	28,65	
41,80	„ 12	11,02	3,98	26,80	27,85	
41,14	„ 19	11,02	3,98	26,14	27,12	
41,29	„ 26	11,02	3,98	26,29	26,75	
41,47	June 2	11,02	3,98	26,47	27,05	
41,72	„ 9	11,02	3,98	26,72	26,47	
42,40	„ 16	11,02	3,98	27,40	26,35	16 June 2½
43,12	„ 23	11,02	3,98	28,12	26,35	
43,03	„ 30	11,02	3,98	28,03	27,31	
42,80	July 7	11,02	3,98	27,80	27,60	
42,63	„ 14	11,02	3,98	27,63	27,46	
42,59	„ 21	11,02	3,98	27,58	27,21	
42,66	„ 28	11,02	3,98	27,66	27,23	
42,33	Aug. 4	11 02	3,98	27,33	28,07	
42,33	„ 11	11,02	3,98	27,33	27,52	
42,46	„ 18	11,02	3,98	27,46	27,22	
42,47	„ 25	11,02	3,98	27,47	26,83	
42,14	Sept. 1	11,02	3,98	27,14	28,29	
42,02	„ 8	11,02	3,98	27,02	26,96	
42,06	„ 15	11,02	3,98	27,06	26,66	
42,07	„ 22	11,02	3,98	27,07	26,63	
41,95	„ 29	11,02	3,98	26,95	26,96	
41,13	Oct. 6	11,02	3,98	26,13	27,43	
41,52	„ 13	11,02	3,98	26,52	27,28	
41,87	„ 20	11,02	3,98	26.87	26,96	
42,09	„ 27	11,02	3,98	27,09	26,63	
41,17	Nov. 3	11,02	3,98	26,17	27,23	
40,40	„ 10	11,02	3,98	25,40	26,64	
40,20	„ 17	11,02	3,98	25,20	26,41	
40,71	„ 24	11,02	3,98	25,71	29,14	
39,81	Dec. 1	11,02	3,98	24,81	26,22	
38,90	„ 8	11,02	3,98	23,90	26,03	8 Dec. 3
38,78	„ 15	11,02	3,98	23,78	25,64	
38,65	„ 22	11,02	3,98	—	26,12	
38,25	„ 29	11,02	3,98	—	26,33	

—Weekly Return.

for Wednesday in each Week, during the Year 1880.

[0,000's omitted.]

8	9	10	11	12	13	14	15	16	17	18
Banking Department.										
Liabilities.					Dates. (Wednesdys.)	Assets.				Totals of Liabilities and Assets.
Capital and Rest.		Deposits.		Seven Day and other Bills.		Securities.		Reserve.		
Capital.	Rest.	Public.	Private.			Government.	Other.	Notes.	Gold and Silver Coin.	
£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	1880.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.
14,55	3,26	5.56	32,17	,32	Jan. 7	20,75	20,25	13,71	1,14	55,86
14,55	3,29	4,42	31,81	,33	„ 14	20,00	19,05	14,14	1,21	54,40
14,55	3,32	4,12	30,85	,30	„ 21	18,90	18,31	14,74	1,20	53,14
14,55	3,32	4,28	30,13	,28	„ 28	17,80	18,24	15,36	1,16	52,56
14,55	3,35	4,63	27,83	,28	Feb. 4	16,80	18,06	14,52	1,31	50,69
14,55	3,35	5,97	26,95	,28	„ 11	16,48	18,09	15,37	1,17	51,12
14.55	3,30	7.27	25,77	,27	„ 18	16,48	18,16	15,44	1,18	51,26
14,55	3,37	8,23	25,58	,26	„ 25	16,48	18,42	15,78	1,30	51,98
14,55	3,71	9.93	25,97	,28	Mar. 3	16,53	21.34	15,24	1,32	54,44
14,55	3,71	10,81	25,37	,29	„ 10	16,49	21.14	15,71	1,39	54,73
14,55	3,73	11,47	25,84	,28	„ 17	16,61	22,59	16,24	1,40	56,87
14,55	3,73	11,24	26,00	,26	„ 24	16,69	21,84	15,99	1,27	55,79
14,55	3,72	12,00	25,83	,27	„ 31	16,96	22.68	15,42	1,30	56,37
14,55	3,08	8,14	26,64	,33	April 7	16,95	19.86	14,63	1,31	52,75
14,55	3,08	6,21	26,37	,30	„ 14	15,95	18.61	14,53	1,44	50,52
14,55	3,11	6,36	26,63	,30	„ 21	15,96	18.82	14,84	1,32	50,95
14,55	3,12	6,71	26,72	,31	„ 28	15,96	19,44	14,65	1,35	51,40
14,55	3,11	6,78	26,02	,28	May 5	15,96	19,45	13,95	1,39	50,75
14,55	3,12	7,13	25,58	,29	„ 12	15,66	19.15	14,95	1,30	50,67
14,55	3,13	7,30	25,38	,26	„ 19	15,67	19,74	14,02	1,18	50,62
14,55	3,13	7.42	25,52	,26	„ 26	15,64	19,40	14,54	1,24	50,88
14,55	3,08	8.29	25,25	,25	June 2	15,89	20,08	14,42	1,23	51,43
14,55	3 08	8,87	25,03	,29	„ 9	15,79	19.43	15,25	1,37	51,83
14,55	3,08	8,60	25,30	,25	„ 16	15,80	18.60	16,05	1,34	51,80
14,55	3,08	8,93	25,33	,25	„ 23	15,80	18,31	16,77	1,26	52.15
14,55	3,08	10,58	27,51	,24	„ 30	15,81	23,14	15,72	1,29	55,96
14,55	3,30	6,09	26,53	,26	July 7	15,54	18,70	15,20	1,31	50,75
14,55	3,32	5,05	26,91	,24	„ 14	15,55	17,97	15,17	1,40	50,08
14,55	3,34	5,00	26,78	,26	„ 21	15,55	17,61	15,38	1,40	49,94
14,55	3,35	5,29	26,38	,26	„ 28	15,55	17,51	15,43	1,35	49,83
14,55	3,38	5,26	24,98	,27	Aug. 4	15,76	17,14	14,25	1,29	48,43
14,55	3,38	5.50	25,90	,32	„ 11	16,35	17,14	14,81	1,35	49.65
14,55	3,41	5,94	25,57	,26	„ 18	16,36	16,91	15,24	1,22	49,74
14,55	3,39	6,97	24,88	,27	„ 25	16,36	16,84	15,64	1,22	50,05
14,55	3,70	7,03	24,87	,30	Sept. 1	16,36	18,06	14,85	1,14	50,46
14,55	3,72	5,92	24.93	,30	„ 8	15,31	17,69	15,06	1,36	49,41
14,55	3,72	6.22	24,94	,28	„ 15	15,42	17.62	15,40	1,27	49,71
14,55	3,73	6,63	24,47	,27	„ 22	15,38	17.58	15,44	1,26	49.65
14,55	3,72	7,15	24,47	,27	„ 29	15,38	18,51	14,99	1,19	50,17
14,55	3,05	6,66	26.22	,32	Oct. 6	17,37	18,50	13,70	1,23	50,79
14,55	3,07	5.32	26,79	,32	„ 13	17,17	17,57	14,24	1,09	50,05
14,55	3,08	4,38	28,18	,29	„ 20	16,37	18,11	14,91	1,04	50,47
14,55	3,08	4,55	28,12	,29	„ 27	15,87	18,06	15,46	1,21	50,59
14,55	3,07	4,49	25,32	,31	Nov. 3	15,87	17,28	13,94	1,17	47,75
14,55	3,08	5,05	24,11	,32	„ 10	14,87	17.29	13,76	1,19	47,10
14,55	3,09	5,58	25,26	,29	„ 17	14,87	19,01	13,79	1,10	48,77
14,55	3,09	5,48	25,22	,27	„ 24	14,87	17,93	11,57	1,24	48,61
14,55	3,04	5,38	24,44	,28	Dec. 1	14.87	18,11	13,59	1,13	47.69
14.55	3,05	6.21	24,37	,30	„ 8	14.37	20,14	12,87	1,11	48,48
14,55	3,05	7.19	24,03	,27	„ 15	14,37	20,43	13,14	1,16	49.09
14,55	3,06	8.00	23,67	,26	„ 22	14,37	21,62	12.53	1,09	49,61
14,55	3,07	8,63	24,85	,23	„ 29	14,37	24,04	11,92	,99	51,32

FOREIGN EXCHANGES.—*Quotations as under,* LONDON *on Paris, Hamburg and Calcutta;—and New York, Calcutta, Hong Kong, and Sydney, on* LONDON, *for* 1880.

1	2	3	4	5	6	7	8	9
				Calcutta.				
DATES. (Approximately.)	London on Paris. 3 m.d.	London on Hamburg. 3 m. d.	New York. 60 d. s.	Indian Council Bills. Minimum Price Per Rupee.	Calcutta on London Bank Bills. 4 m. s.	Hong Kong. 4 m. d.	Sydney. 30 d. s.	Standard *Silver* in Bars in London. pr. oz.
1880.			Per cnt.	*d.*	*d.*	*d.*	Per cnt.	*d.*
Jan. 1	25·47½	20·59	4·80½	—	20½	46⅜		52½
„ 15	25·45	20·56	4·81¾	20⅛	20$\frac{5}{16}$	46⅛	—	52¼
Feb. 5	25·40	20·53	4·82½	20$\frac{3}{16}$	20$\frac{7}{16}$	46¼	—	52½
„ 19	25·41¼	20·62	4·83½	20	20¼	45⅝	—	52⅛
Mar. 4	25·47½	20·66	4·84	19⅞	20$\frac{3}{16}$	45	—	51¾
„ 18	25·50	20·69	4·84¾	20	20$\frac{5}{16}$	45¼	—	52¼
April 1	25·48¾	20·68	4·84¼	20	20¼	45⅜	—	52
„ 15	25·48¾	20·67	4·84½	19$\frac{13}{16}$	20	45½	—	51⅞
May 6	25·51¼	20·68	4·84¾	20	20$\frac{3}{16}$	46½	—	52⅛
„ 20	25·50	20·66	4·85	20	20¼	46½	—	52⅛
June 3	25·55	20·69	4·86¼	20	20$\frac{3}{16}$	46⅜	—	52
„ 17	25·52½	20·69	4·85½	20⅛	20⅜	45⅞	—	52⅝
July 1	25·52½	20·69	4·84	20¼	[illegible]	46½	—	52½
„ 15 ...	25·55	20·70	4·83¼	20⅛	20⅛	45¾	—	52½
Aug. 5	25·55	20·69	4·82½	20$\frac{5}{16}$	20½	45⅞	—	52¾
„ 19	25·55	20·70	4·81¼	20$\frac{3}{16}$	20	45½	—	52½
Sept. 2	25·57½	20·73	4·80¾	20⅛	20$\frac{5}{16}$	45¼	—	52½
„ 16	25·60	20·72	4·80¾	20$\frac{1}{16}$	20¼	45¼	—	52¼
Oct. 7	25·65	20·72	4·80½	20$\frac{1}{16}$	20¼	45⅝	—	52¼
„ 21	25·58¾	20·67	4·81¼	20	20⅛	45⅜	—	52⅛
Nov. 4 ...	25·57½	20·62	4·81	19$\frac{13}{16}$	19⅞	44¾	—	51¾
„ 18	25·57½	20·62	4·80½	19¾	19⅞	44¾	—	51½
Dec. 2 ...	25·55	20·62	4·79	19$\frac{13}{16}$	19$\frac{15}{16}$	44⅜	—	51⅞
„ 16	25·60	20·66	4·77¾	19$\frac{13}{16}$	20	45⅝	—	51¾

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On METHODS *of* ELECTING REPRESENTATIVES.

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THE election of representatives has become, in modern times, a most important part of all political and social machinery. Whenever a number of persons cannot conveniently meet together to determine how their common affairs should be managed; whether because they are too numerous, or for want of leisure, or for any other reason, they elect representatives to act for them. Thus, not only national assemblies like the House of Commons, and municipal bodies, such as town councils, school boards, and boards of guardians, but also boards of directors for joint stock companies, and committees of voluntary societies, consist either altogether or to a great extent of elected representatives. It is assumed that the electors have it in their power to elect such representatives as will be satisfactory substitutes for themselves, and will, by their deliberations and votes, yield substantially the same results as if all the electors met and deliberated and voted as a single body. But whether and how far this assumption may be realised, will depend to a great extent upon the mode in which these representatives are elected. Until within the last few years it was almost universally taken for granted that there was only one possible mode of electing representatives, viz., that now known as majority voting, according to which each elector may vote for as many candidates as there are representatives to be elected, but may only give one of his votes to the same candidate. It is called "majority voting" because whenever a sufficient number of electors to constitute a majority of the constituency agree to vote for the same set of candidates, they can secure the election of their whole set of candidates.

Of late years, several other methods of electing representatives have been devised as substitutes for majority voting, and some of them have been not merely discussed theoretically, but brought into practical operation. Of these other methods, those best known in England are, (1) the limited vote, applied by the Reform Act of 1867 to three-cornered constituencies and the city of London, and since introduced on a much more extensive scale in Brazil, (2) cumulative voting, applied in 1870 to school board elections, and also in use in the Cape Colony (since 1853), and in Illinois and Pennsylvania; and, (3) the preferential vote of Mr. Hare's scheme, and of M. Andræ's Danish constitution. But I must abstain from further details as to these and other new methods and their comparative advantages and disadvantages, until I have laid a foundation for the investigation, by pointing out the deficiencies of majority voting. That system is still almost everywhere in possession, and neither can be nor ought to be disturbed until its defects have been proved to be so serious as to outweigh the inconveniences inseparable from change.

Obviously these different methods of electing representatives are all practical applications of the science of statistics. They all consist in collecting certain statistical data as to whom the electors wish to have as representatives, and putting together these data so as to construct these into a representative assembly.

Majority Voting.

The method of majority voting cannot claim to have originated in any scientific consideration of the problem how a representative assembly might best be formed. It has manifestly been developed gradually out of the mode in which an assembly decides upon any proposal that may be submitted to it. Until the abolition of the show of hands by the Ballot Act of 1872, the first stage in an English parliamentary election consisted in asking the electors, as to each candidate separately, whether he should be their representative. In the second stage, at the poll, when the votes of the electors were recorded systematically it was convenient to receive the votes for all the candidates at once, and then the majority vote rule was adopted, being no doubt recommended by the consideration that it would lead to the same practical result as if the electors had voted separately for or against each candidate. According to either process a majority of one more than half the voters in favour of any candidate or candidates secures his or their election. If the sole or principal object of the electors was to select the most honest, intelligent, and competent among the candidates who offer themselves, and if each elector would exercise his individual judgment as to the qualifications of the candidates, majority voting would probably not work amiss. Every successful candidate would have been separately pronounced by a majority of the electors to be superior in his qualifications to any of the rejected candidates; and though the popular verdict might sometimes err in rejecting a very eligible or admitting an ineligible candidate, yet, on the whole, it would be much oftener right than wrong. But at the present day, at any rate in electing representatives for parliamentary or municipal assemblies, electors do not seek exclusively or mainly to select the most honest, intelligent, and competent of the candidates. On the contrary, with but few exceptions, the electors pay very little attention to the personal qualifications of the candidates, and look only at the views they hold and the measures they promise to support. What they aim at securing is that their views and their measures should prevail in and be carried out by the assembly. I do not blame the electors for thus looking to principles and measures rather than to personal qualifications; but it makes a great difference in the working of majority voting. Whenever the majority of the electors in a constituency have discovered that they are agreed in supporting certain views and measures, they will naturally use the power which, under majority voting, they possess, of only electing representatives who hold the same views and will support the same measures. An election thus naturally becomes a contest between two parties, each of them trying to secure the votes of the majority of the electors for its own views and measures, and for the representatives who will support them. Smaller sections of the constituency, knowing that they cannot elect any representatives of their own selection, will annex themselves to one or the other of the two principal parties.

Majority Voting may completely Exclude Minority.

It may happen that the same party has the upper hand in every constituency, and that the other party has no representative whatever in the assembly. Thus in Geneva, according to a report presented to the Grand Council in 1870, by three of its members, Messrs. Roget, Morin, and Bellamy, "the opposition has always "numbered more than one-third of the electors, and we have seen "it successively represented by 0, 7 deputies, and 1 deputy." This refers to the grand council, which consisted of 102 deputies, for the election of which the canton was divided into three constituencies. The same happened in Maryland in 1868, according to Mr. Simon Sterne's "Personal Representation" (Lippincott, Philadelphia, 1870), p. 71. In this election 62,356 votes were cast for democratic candidates, and 30,442 for republican, and yet this republican minority of nearly one-third of the whole body of voters, did not obtain a single representative in either the senate or the house of representatives.

Majority Voting may give Minority Control of Assembly.

But as a rule the representatives are divided more or less unequally between the two parties, the proportions depending however not upon the comparative strength of the two parties in the constituencies, but on the number of constituencies in which each party happens to have the majority, and the number of representatives returned by these constituencies. This will usually exaggerate the difference between the two parties, and give the stronger party a much larger majority in the assembly than it has in the constituencies; but sometimes on the contrary it assigns the majority in the assembly to the party which is really in a minority in the constituencies. To make my meaning clearer, I will assume that each constituency has a number of representatives in exact proportion to the number of electors it comprises, an assumption which will be very nearly correct in countries where representation is in proportion to population, *e.g.*, in the United States and in France, and which is being more nearly realised in the United Kingdom by every successive Reform Bill. I will further assume that there are 1,990,000 electors who have to elect 199 representatives, or one representative for each 10,000 electors. Suppose now that 100 of these representatives are elected by the A party by narrow majorities of 5,100 to 4,900 in constituencies returning only one member, of 10,200 to 9,800 in constituencies returning two members, and of numbers in the same proportion of 51 to 49 for constituencies returning three or more members, while the other 99 members are elected by the B party, by unanimous constituencies of in all 990,000. Then the A party which has elected 100 representatives, and therefore has a majority in the assembly, will have only received the votes of 510,000 electors, while the B party, which has only 99 representatives, will have received the votes of 490,000 + 990,000 = 1,480,000 electors, or more than 74 per cent., *i.e.*, very nearly three-fourths of the 1,990,000 electors.

This is, of course, an extreme and improbable case, imagined to illustrate what majority voting may possibly do in the way of putting the minority in the place of the majority, but many very much more probable distributions of votes might be suggested, which would produce substantially the same result, *i.e.*, that the majority of representatives would correspond to the minority among the electors. Moreover, such cases are known to have repeatedly occurred in practice. In the United States the President is not elected by a direct vote of all citizens entitled by the franchise, but by a body of electors in a representative assembly, of whom a certain number, from 35 in New York to 1 in Nevada, are elected by each State, all the citizens of a State voting as a single constituency. At three of the four presidential elections next preceding the civil war of 1871,* the successful candidate only received a minority of the popular vote. Thus General Taylor had only 1,362,242 votes, when Cass and Van Buren had between them 1,515,173 votes. Mr. Buchanan, again, had only 1,838,229 votes, while Fremont and Fillmore had between them 2,216,789 votes. So Lincoln had only 1,866,452 votes, while Douglas, Bell, and Breckinridge, who were all opposed to him on the slavery question, obtained between them 2,813,741 votes, or nearly a million more.

The following additional instances are taken from an article, by Mr. Dudley Field, in "Putnam's Magazine" for June, 1870, p. 712: "In New York, in the Assembly, 76 republican members "were elected in 1868 by 397,899 votes, while only 52 democratic "members were elected by 431,510 votes." Proportionally there ought to have been 67 democrats, and 61 republicans. In the same year, "In California the republicans elected 23 members by 54,592 "votes, while the democrats elected 97 members by a less number, "that is by 54,078."

In Belgium, according to M. Leon Pety de Thozée, "Réforme "Electorale," p. 8, Bruxelles, 1874, "In the elections of 14th June, "1870, 18,737 electors voted for the liberals, and only 14,096 for "the catholics, and yet only 31 liberal members were elected, "against 30 catholics, and if a very small number of votes had "been changed at Charleroi, there would have been only 29 liberal "members to represent 57 per cent. of the electors, and 32 catholics "to represent the minority of 43 per cent."

These instances show that majority voting is not always able to ensure that the majority of representatives is on the same side with the majority among the electors.

Over Representation of Majority.

Even in the more common case where the majority in the assembly is on the same side with the majority among the constituencies, it is quite uncertain what proportion they may bear to each other. An overwhelming majority in the assembly may correspond to a narrow majority among the constituencies. It may be thought by some that this is of little importance, and that when once it is settled which party has a majority in the assembly, it does not matter how large or how small this majority is. If the assembly could guide itself altogether by one or two general principles, upon which the whole of the majority party were agreed, it would not perhaps matter much whether their majority was narrow or overwhelming. But instead of this, every assembly, whether parliamentary or municipal, ordinarily has to deal with a variety of more or less complicated measures, presenting numerous points for discussion, among which there will almost always be some upon which the members of the dominant party differ among themselves. By availing itself of such opportunities a strong minority is not unfrequently able to delay or modify, if not defeat, the measures proposed by their opponents. But when the one party has a very large majority in the assembly, not only the members of the minority, but even the more moderate members of the majority, are powerless to check the action of the majority party, action which sometimes goes far beyond anything in the party programme submitted to the electors at the election which conferred upon the party their majority. Moreover, the members of a party, and even their leaders, are apt to assume that its majority in the assembly correctly represents its strength in the country, and to push forward what they suppose to be a popular policy, until they are undeceived by the next general election. If a method of voting were introduced which would ensure that the representatives of different parties were at least roughly in proportion to the respective numbers of electors belonging to the same parties respectively in the constituencies, the real strength of each party would be known to every one from the division lists of the assembly, and we should be free from both the dangers above referred to, viz., (1) of the majority in the constituencies being misrepresented in the assembly, and (2) of its being over-represented there. That this is practicable I hope to show further on.

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* See a table by Colonel Wheeler, of the Statistical Bureau, Washington, at p. 36 of a "Report of a Committee of the United States' Senate on Representative "Reform," 2nd March, 1869.

Instability under Majority Voting.

Moreover, when an assembly is elected by majority voting the relative strength of the different parties is much more unstable and fluctuating than it would be under such a system of proportional representation as I have just referred to. Then the fluctuations would only be in proportion to the changes of opinion which time and circumstances might produce among the electors. Under majority voting it often happens (indeed much more frequently than would be anticipated *à priori*) that elections are decided by very narrow majorities, so that if only a very few votes changed sides the representation would be transferred to the other party.

Narrow Majorities under Majority Voting.

To illustrate this, I have prepared tables showing for the last three general elections for the United Kingdom, those of 1868, 1874, and 1880, (1) how many seats were won by majorities not exceeding 100, and (2) how many seats were won by majorities not exceeding 10 per cent. of the votes polled for the successful candidate.

From Tables I and II it appears that in 1868 34 conservatives and 33 liberals owed their success to majorities of less than 100, while 48 conservatives and 48 liberals gained their seats by majorities less in each case than 10 per cent. of the votes polled for the successful candidate. I have further calculated how many voters must change sides in order to transfer these seats to the other party. I find from Table I (of majorities under 100) that the 34 conservative seats would be transferred to the liberals if 790 voters changed sides, and that the 32 liberal seats would be transferred to the conservatives if 657 voters changed sides.*

From the Table II of majorities under 10 per cent., I find that the 48 conservative seats would be transferred to the liberals if 3,674 voters (less than 3 per cent. of the conservative voters in those cases, 123,993 in all) changed sides, and that the 48 liberal seats would be transferred to the conservatives if 2,810 voters (less than 2·8 per cent. of the liberal voters in those cases, 102,134 in all) changed sides.

From Tables III and IV it appears that in 1874, 32 conservatives and 32 liberals owed their success to majorities of less than 100, while 49 conservatives and 49 liberals gained or kept their seats by majorities less in each case than 10 per cent. of the votes polled for the successful candidate. I have also calculated that of the seats depending on majorities of less than 100, the 32 conservative seats would be transferred to the liberals if 652 voters changed sides, while the 32 liberal seats would be transferred to the conservatives if 617 voters changed sides. Of the seats depending on majorities of less than 10 per cent., I find that the 49 conservative seats would be transferred to the liberals if 3,501 voters (less than 2·8 per cent. of the conservative voters in those elections, 125,796 in all) changed sides, and that the 49 liberal seats would be transferred to the conservatives if 3,506 voters (less than 2·74 per cent. of the liberal voters in those cases, 128,081 in all) had changed sides.

From Tables V and VI it appears that in 1880 33 conservatives and 58 liberals owed their success to majorities of less than 100, while 48 conservatives and 72 liberals gained or kept their seats by majorities less in each case than 10 per cent. of the votes polled for the successful candidate. I have also calculated that of the seats depending on majorities of less than 100, the 33 conservative seats would be transferred to the liberals if 715 voters changed sides, while the 58 liberal seats would be transferred to the conservatives if 1,214 voters changed sides. Of the seats depending upon majorities of less than 10 per cent., I find that the 48 conservative seats would be transferred to the liberals if 3,010 conservative voters changed sides, and that the 72 liberal seats would be transferred to the conservatives if 4,054 liberal voters changed sides.

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* The number of voters who must change sides to transfer a seat to the other party, is always the next whole number greater than half the majority. Hence to calculate the total number of votes which must change sides, I have added to the sum total of the majorities one for every odd, and two for every even majority, and halved the total. In cases where two seats have been won by the same party, I have omitted the figures as to the smaller majority, because if sufficient voters change sides to transfer the other seat, that one will also be transferred.

In Table II, of the majorities under 10 per cent. in 1868, I have marked with an * those seats which were won by the opposite party in 1874, and with a † those which having been retained in 1874 by the same party, were won by their opponents between 1874 and 1880; and in Table IV, of the majorities under 10 per cent. in 1874, I have marked with a † those seats which were won by the opposite party in 1880. I find that 11 conservative seats out of 48, and 34 liberal seats out of 48, or altogether 45 seats out of 96 in Table II were won by the opposite party in 1874, and 20 more conservative seats and 4 more liberal seats, or altogether 24 additional seats, in 1880; and that 45 conservative seats out of 49, and 8 liberal seats out of 49 in Table IV, or altogether 53 seats out of 98, were won by the opposite party in 1880. These changes, however, by no means represent all the seats that were insecure. At the general election of 1874 the conservatives gained 97 seats and lost 36,* and at the general election of 1880 they lost 134 seats and gained 25.† There was a general movement of public opinion in favour of the conservatives in 1874, and against them in 1880, but that they should have, notwithstanding, lost 36 seats in 1874 and gained 25 seats in 1880, shows by how uncertain a tenure very many parliamentary seats are held. The 10 per cent. Tables II, IV, and VI comprise the names of 178 constituencies out of 419, of which 11 had extremely close contests at each of the three elections, 51 more at two of these elections, and the remaining 116 at only one general election. There have also been a certain number of close contests between two candidates belonging to the same party. These I have not included.

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[*] G. F. Chambers's "Record of Parliamentary Elections," 1874.

[†] "Times," 20th April, 1880.

Table I.—*Majorities under One Hundred. Election of* 1868.

Conservative Victories.	
Abingdon	73
Boston	90
Brecknock	15
Bridgnorth	51
Chippenham	69
Clitheroe	67
Derbyshire, N.	61
Devizes	64
Enniskillen	30
Evesham	33
Falmouth	72
Haddingtonshire	65
Hampshire, S.	30
Hertford	89
Kent, West	55
Lichfield	51
Malmesbury	23
Great Marlow	31
Northallerton	14
Peebles and Selkirk	3
Poole	60
Portarlington	18
Rye	14
Salford	40
Southampton	17
Stafford	15
Taunton	28
Thirsk	26
Wallingford	95
Warwickshire, S.	29
Westbury	27
Wigtownshire	67
Woodstock	21
Yorkshire, W.R., E.D.	88

Liberal Victories.	
Andover	71
Athlone	34
Ayrshire, N.	75
,, S.	25
Bandon	4
Bodmin	90
Canterbury	79
Carlisle	14
Christchurch	49
Derbyshire, E.	33
Dover	48
Dumfriesshire	44
Durham	52
Exeter	29
Guildford	21
Hampshire, S.	71
Hereford	32
Horsham	0
Knaresborough	15
Lewes	14
Limerick	74
Newry	8
Oldham	8
,,	56
Petersfield	42
Salisbury	56
Sussex, E.	51
Tewkesbury	76
Wakefield	45
Wareham	13
Warrington	27
Windsor	8
York, W.R., S.D.	8

Table II.—*Majorities under Ten per Cent. Election of* 1868.

Conservative Victories.

†Ashton	2,318 2,104	214	*Bridgnorth	548 497	51
*Blackburn	4,826 4,399	427	†Clitheroe	760 693	67
*Boston	1,119 1,029	90	*Coventry	3,761 3,594	167
*Bolton	5,848 5,451	397	† ,,	3,781 3,576	205
†Brecknock	372 357	15	Cumberland, E.	2,620 2,390	230

TABLE II.—*Majorities under Ten per Cent. Election of* 1868—*Contd.*

CONSERVATIVE VICTORIES—*Contd.*

†Derbyshire, N.	2,698 2,637	61
* ,, S.	3,582 3,443	139
,,	3,594 3,375	219
†Dublin	5,587 5,379	208
Hampshire, S.	2,756 2,726	30
Kent, E.	5,104 4,685	419
,, W.	3,378 3,323	55
,,	3,440 3,196	244
†Lancashire, N.E.	3,594 3,463	131
† ,,	3,612 3,441	171
Lancashire, S.W.	7,676 7,415	261
†Leicestershire, S.	3,110 2,861	249
Liverpool	16,222 15,017	1,205
†Lynn Regis	1,125 1,012	113
Malmesbury	337 314	23
Great Marlow	345 314	31
Northallerton	386 372	14
Northamptonshire, S.	2,505 2,305	200
†Norwich	4,521 4,364	157
†Peebles and Selkirk	361 358	3
*Poole	623 563	60
†Rye	513 499	14
†Salford	6,181 6,141	40
† ,,	6,312 6,018	294
*Southampton	2,178 2,161	17
†Stafford	1,124 1,107	17
*Stockport	2,714 2,591	123
Suffolk, E.	3,620 3,321	299
Sussex, E.	3,581 3,470	111
*Taunton	918 890	28
†Warwickshire, S.	2,501 2,472	29
,,	2,581 2,458	123
*Westbury	492 465	27
Wigtonshire	719 652	67
Woodstock	502 481	21
†Worcestershire	4,108 3,789	319
†Yorkshire, W.R., E.D.	7,135 7,047	88
† ,,	7,437 6,867	570

TABLE II.—*Majorities under Ten per Cent. Election of* 1868—*Contd.*

LIBERAL VICTORIES.

*Ayrshire, N.	1,397 1,322	75	*Exeter	2,247 2,218	29
* „ S.	1,416 1,391	25	*Guildford	536 515	21
†Bandon	141 137	4	†Hampshire, S.	2,797 2,716	81
*Bath	2,187 2,024	163	*Hereford	1,015 983	32
*Brighton	3,081 2,917	164	*Hertfordshire	3,625 3,356	269
*Canterbury	1,236 1,157	79	*Horsham	380 380	0
*Cardiganshire	2,074 1,918	156	Hull	6,874 6,383	491
Carlisle	1,971 1,957	14	*Ipswich	2,195 2,044	151
*Carnarvonshire	1,963 1,815	148	*Knaresborough	362 347	15
*Chatham	2,042 1,858	184	*Lewes	601 587	14
*Colchester	1,417 1,284	133	Limerick	794 720	74
*Derbyshire, E.	2,032 1,999	33	London omitted, because small majority due to liberals running four candidates		
„	2,089 1,970	119	Macclesfield	2,509 2,321	188
Devonshire, N.	3,898 3,520	378	†Maidstone	1,546 1,412	134
*Devonport	1,519 1,370	149	†Newry	387 379	8
*Dover	1,435 1,387	48	*Oldham	6,122 6,116	6
Dublin	5,586 5,452	134	* „	6,140 6,084	56
*Dumfriesshire	1,100 1,056	44	*Petersfield	363 321	42
Durham, S.	4,021 3,746	275	*Salisbury	679 623	56
Durham	784 732	52	Stockport	2,658 2,475	183

Table II.—*Majorities under Ten per Cent. Election of* 1868—*Contd.*

Liberal Victories—*Contd.*

*Surrey, E.	3,941 3,557	384	*Warrington	1,984 1,957	27
*Sussex, E.	3,611 3,560	51	*Windsor	803 795	8
*Tower Hamlets	7,849 7,446	403	*Yorkshire, W.R., S.D.	7,943 7,935	8
*Wakefield	1,557 1,512	45	* ,,	8,110 7,621	489
*Wareham	314 301	13			

Table III.—*Majorities under One Hundred. Election of* 1874.

Conservative Victories.		Liberal Victories.	
Ayr	14	Banbury	84
Bath	6	Bandon	5
Bedford	9	Barnstaple	53
Brecknock	21	Bewdley	99
Cambridge	20	Blackburn	13
Clitheroe	92	Caithness	11
Derbyshire, E.	99	Cardiff	9
Donegal	40	Denbigh	30
Enniskillen	20	Dungannon	12
Evesham	47	Durham	33
Exeter	66	Falmouth	41
Grantham	66	Flint	4
Hereford	76	Helstone	50
Knaresborough	98	Hereford	18
Lanarkshire, S	21	Kinsale	60
Lancashire, N.E.	80	Kirkcudbrightshire	4
Leitrim	43	Macclesfield	42
Lynn Regis	94	Maidstone	73
Maldon	42	Newark	88
Northallerton	7	Newcastle-under-Lyme	79
Norwich	47	New Ross	21
Petersfield	11	Newry	4
Portarlington	24	Oxford	83
Roxburghshire	26	Pembroke	29
Rye	58	Renfrewshire	18
Salford	60	Richmond	64
Salisbury	76	Salisbury	17
Shaftesbury	30	Stroud	31
Stirlingshire	44	Tewkesbury	27
Thirsk	1	Tiverton	24
Wight, Isle of	10	Warwick	43
Wigton	2	Westbury	22

Table IV.—*Majorities under Ten per Cent. Election of* 1874.

CONSERVATIVE VICTORIES.

Antrim	4,142 4,009	133	†Grantham	965 899	66
†Ashton	2,612 2,432	180	†Great Grimsby	1,534 1,393	141
†Ayr	1,697 1,683	14	†Hereford	978 902	76
†Bath	2,397 2,391	6	†Lanarkshire, S.	1,347 1,326	21
†Bedford	1,010 1,001	9	†Lancashire, N.E.	4,481 4,401	80
†Bolton	5,987 5,440	547	† ,,	4,578 4,297	281
†Brecknock	374 353	21	Leitrim	1,098 1,055	43
†Cambridge	1,794 1,774	20	†Lynn Regis	1,093 999	94
† ,,	1,856 1,738	118	†Maldon	632 590	42
†Chelsea	7,173 6,701	472	†Manchester	19,649 18,727	922
†Chester	2,356 2,125	231	Northallerton	386 379	7
†Colchester	1,407 1,279	128	†Norwich	5,823 5,776	47
†Cornwall, E.	3,276 2,978	298	†Oldham	8,541 8,397	144
†Coventry	3,823 3,662	161	† ,,	8,582 8,360	222
†Cricklade	2,231 2,092	139	†Petersfield	372 361	11
†Derbyshire, E.	2,116 2,017	99	†Roxburghshire	789 763	26
†Donegal	1,866 1,826	40	†Rye	597 539	58
†Dumfriesshire	1,452 1,315	137	†Salford	6,987 6,827	160
†Exeter	2,330 2,264	66	† ,,	7,003 6,709	294
†Gloucester	2,132 1,990	142	†Salisbury	835 759	76

TABLE IV.—*Majorities under Ten per Cent. Election of* 1874—*Contd.*

CONSERVATIVE VICTORIES—*Contd.*

†Shaftesbury	591	561	30
†Southampton	2,534	2,345	189
†Staleybridge	2,378	2,220	158
†Stirlingshire	1,171	1,127	44
Thirsk	410	409	1
†Warrington	2,381	2,201	180
†Wight, Isle of	1,614	1,604	10
†Wigton	522	520	2
†Yorkshire, W.R., E.D.	8,077	7,285	792

LIBERAL VICTORIES.

†Bandon	180	175	5
Bath	2,520	2,348	172
†Barnstaple	675	622	53
Blackburn	5,338	5,325	13
Bolton	5,782	5,650	132
Bristol	8,732	8,522	210
Caithness	450	439	11
Cardiff	2,780	2,771	9
Cornwall, E.	3,395	3,099	296
Coventry	3,799	3,628	171
Denbigh	1,238	1,208	30
Derbyshire, E.	2,206	2,067	139
,, S.	3,773	3,572	201
†Down	4,814	4,683	131
Dungannon	121	109	12
Durham, N.	4,327	4,011	316
Durham	879	846	33
Falmouth	784	743	41
Flint	1,076	1,074	2
Gloucester	2,070	1,865	205
†Greenwich	5,968	5,561	407
Hackney	6,893	6,310	583
Hereford	921	903	18
Hull	8,499	7,705	794
Kirkcudbrightshire	835	831	4
Lambeth	11,788	11,201	587
Macclesfield	2,792	2,750	42

Table IV.—*Majorities under Ten per Cent. Election of* 1874—*Contd.*

Liberal Victories—*Contd.*

†Maidstone	1,491 1,414	77	Shrewsbury	1,533 1,382	151
†Newark	912 824	88	Stockport	3,528 3,406	122
Newcastle-under-Lyme	1,116 1,037	79	”	3,628 3,372	256
†Newry	459 455	4	Stroud	2,794 2,763	31
Northampton	2,310 2,175	135	”	2,798 2,667	131
Oxford	2,281 2,198	83	Tewkesbury	350 323	27
Pembroke	1,339 1,310	29	Tiverton	629 605	24
Reading	1,790 1,652	138	Warwick	783 740	43
”	1,794 1,631	163	†Westbury	540 518	22
Renfrewshire	1,921 1,903	18	Worcester	2,164 1,958	206
Salisbury	800 783	17	Yorkshire, W.R., N.D.	8,598 7,820	778

Table V.—*Majorities under One Hundred. Election of* 1880.

Conservative Victories.

Ayrshire, N.	55	Inverness-shire	29
Bandon	15	Lichfield	16
Bridport	13	Londonderry	88
Carrickfergus	37	Newark	11
Chippenham	23	Newry	30
Coleraine	29	Nottinghamshire, N.	10
Devizes	58	Plymouth	40
Dorchester	42	Poole	6
Dover	94	Rochester	99
Down	20	Sheffield	40
Downpatrick	77	Shropshire, N.	67
Dumbartonshire	9	Thirsk	63
Enniskillen	21	Westbury	54
Eye	62	Wigan	33
Haddingtonshire	44	Wigtownshire	44
Harwich	58	Wilts, N.	50
Helston	40		

Table V.—*Majorities under One Hundred. Election of* 1880—*Contd.*

Liberal Victories.

Abingdon	42	Monmouth	61
Andover	41	Newark	88
Berwick	62	Newport	58
Bewdley	68	New Ross	88
Bodmin	43	Norfolk, S.	1
Boston	17	Northumberland, S.	72
Brecknock	59	Oxford	10
Buckingham	8	Peebles	32
Buteshire	17	Pembroke	33
Carlow	4	Petersfield	86
Cheltenham	21	Plymouth	22
Christchurch	18	Roxburghshire	10
Colchester	2	Rye	8
Coventry	97	St. Ives	48
Denbigh	15	Shaftesbury	34
Donegal	61	Southampton	51
Dumfriesshire	73	Stamford	50
Dungannon	2	Taunton	40
Durham	94	Tewkesbury	9
Edinburgh University	74	Tralee	52
Evesham	9	Tyrone	48
Huntingdonshire	21	Wallingford	41
Ipswich	97	Wareham	35
King's Lynn	93	Warwickshire, S.	43
Kinsale	70	Wigtown	12
Kirkcudbrightshire	21	Wicklow	7
Knaresborough	16	Wight, Isle of	13
Macclesfield	66	Worcester	9
Maldon	18	Youghal	13

Table VI.—*Majorities under Ten per Cent. Election of* 1880.

Conservative Victories.

Antrim	4,936 4,789	147	Carrickfergus	591 554	37
Ayrshire, N.	1,636 1,581	55	Chatham	2,499 2,398	101
Bandon	200 185	15	Cheshire, Mid	3,700 3,374	326
Birkenhead	4,025 3,658	367	Chippenham	478 455	23
Blackburn	6,207 5,760	447	Cumberland, E.	3,161 3,039	122
Bridport	478 465	13	Dover	1,701 1,607	94
Canterbury	1,425 1,294	131	Down	5,599 5,579	20

TABLE VI.—*Majorities under Ten per Cent. Election of* 1880—*Contd.*

CONSERVATIVE VICTORIES—*Contd.*

Dumbartonshire	1,333 1,324	9	Norfolk, W.	2,433 2,304	129
Essex, E.	2,561 2,369	192	Nottinghamshire, N.	2,745 2,735	10
„ S.	4,726 4,324	402	Plymouth	2,442 2,402	40
Haddingtonshire	469 425	44	Poole	854 848	6
Hastings	1,873 1,702	171	Portsmouth (two seats)	6,683 6,030	653
Helston	461 421	40	Preston	5,641 5,355	286
Inverness-shire	808 779	29	Rochester	1,393 1,294	99
Ipswich	3,142 3,025	117	Sheffield	16,546 16,506	40
Kent, E.	5,473 4,959	514	Shoreham	2,195 2,095	100
King's Lynn	1,252 1,143	109	Shropshire, S.	2,216 2,149	67
Lichfield	553 537	16	Somerset, W.	3,136 2,967	169
Londonderry	964 876	88	Suffolk, E.	3,618 3,504	114
Maidstone	1,832 1,725	107	Westbury	559 505	54
Monmouthshire	3,294 3,019	275	Wigan (two seats)	2,946 2,655	291
Newark	993 982	11	Wigtonshire	768 722	46
Newry	587 557	30	Wiltshire, N.	2,833 2,783	50

LIBERAL VICTORIES.

Abingdon	428 386	42	Bolton (two seats)	6,965 6,415	550
Andover	405 364	41	Boston	1,367 1,350	17
Blackburn	6,349 6,088	261	Brighton (two seats)	4,913 4,664	249

Table VI.—*Majorities under Ten per Cent. Election of* 1880—*Contd.*

Liberal Victories—*Contd.*

Bristol	10,070	9,375	695
Buckingham	528	520	8
Buteshire	568	551	17
Cardiff	3,831	3,488	343
Carlow	149	145	4
Cheltenham	2,318	2,297	21
Christchurch	1,185	1,117	68
Colchester	1,650	1,648	2
Coventry	4,105	4,008	97
Denbigh	1,424	1,409	15
Derbyshire, N.	3,183	2,936	247
Donegal	2,015	1,954	61
Dublin	5,647	5,446	201
Dumfriesshire	1,577	1,505	72
Dungannon	128	126	2
Durham	1,152	1,058	94
Edinburgh University	2,522	2,448	74
Evesham	382	373	9
Gravesend	1,544	1,422	122
Huntingdonshire	1,617	1,596	21
Ipswich	3,074	2,979	95
King's Lynn	1,281	1,188	93
Kirkcudbrightshire	982	961	21
Knaresborough	357	341	16
Lancashire, S.E. (two seats)	11,313	10,419	894
Lincolnshire, N.	4,159	3,865	294
Macclesfield	2,744	2,678	66
Maldon	679	661	18
Monmouth	2,258	2,197	61
Montgomeryshire	2,232	2,041	191
Newark	1,073	985	88
Newport	618	560	58
Norfolk, S.	2,906	2,905	1
Northamptonshire, N.	2,425	2,316	109
Northumberland, S.	3,694	3,622	72
Nottingham, N.	2,813	2,646	167
Oxford	2,669	2,659	10
Peebles and Selkirk	516	484	32
Pembroke	1,462	1,429	33
Plymouth	2,406	2,384	22

Table VI.—*Majorities under Ten per Cent. Election of* 1880—*Contd.*

Liberal Victories—*Contd.*

Reading	2,286 2,067	219	Tewkesbury	350 341	9
Roxburghshire	859 849	10	Tyrone	3,500 3,152	48
Rye	626 618	8	Wallingford	582 541	41
St. Ives	487 439	48	Wareham	451 416	35
Shaftesbury	652 618	34	Warwickshire, S.	2,550 2,507	43
Southampton (two seats)	3,051 2,902	149	Wigtown	650 638	12
Staleybridge	2,706 2,542	164	Wicklow	1,240 1,233	7
Stamford	601 551	50	Wight, Isle of	1,986 1,973	13
Stockport	4,103 3,873	230	Worcester	2,511 2,502	9
Stroud	3,081 2,810	271	Yorkshire, W.R., S.D.	11,181 10,391	790
Taunton	1,000 960	40	Youghal	133 120	13

The great changes produced in the British Parliament by the general elections of 1874 and 1880 were exceeded in the Canadian elections of September, 1879. These gave the opposition a majority of at least 66 in a house of only 206, while throughout the whole of the preceding parliament the opposition had never been in a smaller minority than 39 ("Times," 4th October, 1879). Therefore at least 105 seats out of 206 had been transferred from the one party to the other.

In Victoria there were two general elections in 1880. In the first ("Times," 13th April, 1880) Mr. Berry's ministry only secured 37 supporters against 49 supporters of Mr. Service. In the second ("Times," 9th September, 1880) Mr. Service's supporters only numbered 35 against 44 opponents, supporters of Mr. Berry, and 7 neutrals. This is attributed to the Roman Catholic vote having been thrown at the first election against Mr. Berry, and at the second against Mr. Service, because neither minister would consent to give them separate denominational schools. If Irish be substituted for Roman Catholic, the explanation would apply to a considerable part of the recent fluctuations in the parliamentary representation of English voters.

At the United States' presidential election for 1864, Mr. Lincoln was elected by a majority of 184 electors against 21 for General MacClellan; but this overwhelming majority only corresponded to a majority of 2,223,035 to 1,811,754, or 411,281 among the primary electors; and according to a calculation made by Colonel Wheeler, of the United States' statistical bureau, in the paper already quoted from the report of the Senate Committee on representative reform, it would only have required 36,000 voters, *i.e.* less than 2 per cent. of Lincoln's voters, to change sides, to transfer 100 electors from Lincoln to MacClellan, thus giving the latter a majority of 121 votes against 84. In 1852, according to a table appended to Mr. James Garth Marshall's "Minorities and Majorities" (Ridgway, 1853), President Pierce, democrat, was elected by a majority of 278 votes against 18 for General Scott, whig; but this only corresponded to a majority of 178,900 among the primary electors; and according to a calculation I have made from Mr. Marshall's figures, it would only have required 28,200 electors to change sides, to transfer 133 electors from Pierce to Scott, giving the latter a majority of 151 votes to 145.

From the electoral statistics published by the Italian government ("Statistica Elettorale Politica," Roma, 1876, and the same, 1880), I have ascertained that the number of elections won by less than 10 per cent. of the majority was:—

In 1861	50	out of	443
" '65-66	69	"	493
" '67	73		
" '70	43	"	508
" '74	49		
" '80	47		

For the elections of 1870, 1874, and 1880 these figures were ascertained in the same manner as for the elections of the United Kingdom, by counting the cases in which the votes polled for the highest candidate did not exceed by more than 10 per cent. those polled for the second candidate. For the elections of 1861, 1865-66, and 1867, I had no tables showing the votes polled for the second candidate, and therefore I have counted the cases where the votes polled for the highest candidate do not exceed $52\frac{1}{2}$ per cent. of the total votes polled. This would include cases where the remaining votes were divided among two or more unsuccessful candidates.

Taking the three last* Italian elections alone, they give an average of 9 per cent. of cases in which the majority is less than 10 per cent.

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* There was a general election in 1876, the statistics of which I have not seen.

of the successful candidates' votes, while the three last English elections give 12½ per cent. of such cases. The difference may perhaps be due, wholly or in part, to the Italians having a ballotage or second election if the first candidate does not obtain an absolute majority of the votes polled. This enables several candidates of the same party to compete against each other at the first election, and thus prevents the managers of the party from forcing an unpopular candidate upon it, and thus causing a certain number of abstentions or desertions, and converting a secure victory into a closely balanced contest.

Instability Resulting from Narrow Majorities.

From the figures given above, it is easy to understand how a slight change in political opinion among the electors may produce a very considerable change in the balance of parties among their representatives. The political system is in fact always in a state of unstable equilibrium, liable to be turned upside down by anything that may make the one party popular or the other unpopular at the time of a general election. This makes the leaders of parties extremely sensitive to fluctuations of public opinion, and unwilling to risk even a slight amount of temporary unpopularity; while on the other hand it makes popular agitators much more influential than they would be if the elections did not so often depend upon small majorities, and thus come to be decided by that class among the electors whose votes are most readily affected by temporary fluctuations of opinion.

If the representatives were elected so as to represent the different parties among the electors according to their real strength, the fluctuations in the strength of parties in the assembly would be only in proportion to the actual changes of opinion among the electors. If a party had a decided majority, its leaders would be able to risk incurring a certain amount of unpopularity among the class of electors to which I have referred, provided they still retained the confidence of their regular supporters in the assembly and among the electors.

Corruption Due to Narrow Majorities.

The tables of narrow majorities (Nos. I to VI) will also explain why electors under majority voting are so liable to be influenced by bribery, treating, intimidation, and other undue influences. The bulk of the electors in a constituency may be too honest to be bribed or corrupted, and too independent to be intimidated, but there will always be some few who are accessible to such influences, and whenever the honest and independent electors are divided into two nearly equal parties, supporting two rival candidates, or sets of candidates, the election is really left in the hands of the corrupt or dependent residue. If the constituencies which now return together five or seven representatives, were united into a single constituency with the same number of representatives, and these representatives were elected in such a manner as to represent the different parties among the electors proportionally, the corrupt or dependent residues, which had enjoyed such great influence under majority voting, would only be able to influence the election of, at the utmost, one representative out of the five or the seven. This has been practically verified in the school board elections with cumulative voting.

It occasionally happens, as election investigations have shown, that not only a small residue, but a considerable fraction, perhaps a majority, of a constituency has become corrupt. But in these cases it will usually be found that the corruption has gradually increased from small beginnings. A few voters having been bribed to turn an election, gradually more and more insist on being paid. If the election managers had not been tempted at first to bribe a few, the constituency would have remained pure.

Majority voting is also responsible for a great part of the expenditure incurred by candidates in retaining election agents, having committee rooms, advertising, and bringing voters to the poll. Within certain limits, expenditure for these purposes is legitimate, as contributing to make the views and claims of the candidates known to the electors: but, unquestionably, a very large portion of this expenditure is only incurred because elections depend upon narrow majorities, and it is, therefore, worth while to incur a very considerable expenditure for the chance of securing a few additional votes.

Personation also is not resorted to, at least not systematically, except when it is supposed that parties are nearly equally divided in the constituency, and that, therefore, success depends upon a small number of votes.

Gerrymandering.

There is another mode in which the circumstance that under majority voting elections frequently depend upon a small balance of votes, may be used to transfer seats from the one party to the other. This is by altering the constituency, and either adding or taking away some class of electors which is supposed to be much more favourable to the one party than to the other. This may be done either by altering the boundaries of the electoral districts or by enfranchising or disfranchising a particular set of electors. The alteration of boundaries for this purpose is extensively practised in the United States, under the name of gerrymandering, and it was also common in France under Napoleon III, where large towns which, if left undivided, would probably have elected opposition candidates, were divided into several portions, each of which was united with a sufficiently large rural district to secure a majority for the government. (See Mr. Ware's "Machinery of Politics;" "American Law "Review" for January, 1872, vol. vi, p. 283; Baron de Layre, "Les "Minorités." Dentu. Paris, 1868, p. 23.) In England, fortunately, the boundaries of constituencies and the conditions of the franchise have only been altered twice, viz., in 1832 and in 1867-78; and the circumstances under which the last Reform Bills of 1867-78 were passed, the official influence of the ministry being on one side, and the majority of the House of Commons on the other, were calculated to check any such proceedings, and they are not yet recognised as legitimate party manœuvres. But we cannot reckon upon this continuing, if majority voting be maintained, and it remain possible by slight alterations in the conditions of the franchise to transfer a whole set of constituencies from the one party to the other. If proportional representation were substituted for majority voting, the provisions of a Reform Bill, whether as to the conditions of the franchise or as to the alterations in the constituencies, would have much less influence on the balance of parties, and would have a much fairer chance of being considered on their merits.

Division into Two Parties.

Thus far I have reasoned on the assumption that the division into two, and only two parties, which is found almost everywhere under majority voting, will not be affected by the change to another mode of voting. But in fact, as I believe, this limitation of electoral contests to only two parties is due mainly to majority voting, and would be more or less broken in upon if any method of voting were substituted which enabled smaller sections of the electors to obtain separately their respective shares of the representation without being compelled to combine together to form a majority party. That majority voting by thus compelling smaller sections to combine together, on pain of being left unrepresented, tends to limit to only two the number of parties competing at an election, I have shown in a previous part of this paper. It may be thought, however, that this, though an adequate cause, may not be the only possible cause. It is a prevailing opinion among those who confine their attention to English party divisions, that though the creeds of the liberal and conservative parties may vary from time to time in their details, they correspond substantially to two opposite tendencies of thought, which produce naturally two opposite sets of opinions and two opposing parties. But even without going outside English politics, anyone who examines carefully the opinions from time to time advocated by these two parties on those questions of domestic and foreign policy which from time to time prominently occupy public attention, will, I think, come to the conclusion that not unfrequently the members of each party are kept in agreement with each other far more by reluctance to separate from their common organisation (which under majority voting is the condition of their exercising any political influence) than by any of the principles which they hold in common. And when we look beyond the United Kingdom to other countries where representative government with majority voting has been for a long time in operation, to the United States, to Switzerland, or to Belgium, we shall find everywhere* the same division into two and only two parties, but the character of the party division varying in different countries. In the United States the distinguishing characteristics of the rival parties have nothing whatever in common with those of our Liberals and Conservatives, and this is also true of the Independents and Radicals of Geneva. We find, moreover, that the same party divisions usually run through all elections, whether federal, State, or municipal, or, as the case may be, national or municipal, though there is no connection between the questions to be dealt with by the different sets of representatives. These phenomena I cannot explain by any theory of a natural division between opposing tendencies of thought, and the only explanation which seems to me to account for them is that the two opposing parties into which we find politicians divided in each of these countries have been formed and are kept together by majority voting.

I am far from imagining that the substitution of proportional representation for majority voting would prevent the bulk of the members of such a representative assembly as the House of Commons from being still divided, ordinarily into two principal parties. The House of Commons will still decide all questions submitted to it by majorities, and there will still be a responsible ministry whose continuance in office will depend upon its receiving a certain support from the majority of the House, and therefore there will usually be another party aspiring to replace this ministry. But if the electors were free to choose not merely between the two parties and their respective sets of candidates, but between the individual candidates of each party, and all other candidates who might be nominated (and this they would be able to do freely under some of the systems of proportional representation to be described further on in this paper), the representatives thus elected, though probably usually members of the one or the other of these two principal parties, would be much more free to act either independently or in smaller sections, either combining with other sections of their party, or separating themselves, according to their own opinions and those of their constituents, upon the particular questions voted on. They would not be always trying to keep up the appearance of a single harmonious party, with a view to the next elections. Provided they voted in accordance with the opinions to represent which they had been elected, they would be pretty safe of re-election, although they had not always adhered to the same party. Thus the individual representatives, and through them the electors, would be able to exercise a more continuous and effective influence on the proceedings of parliament, than they can do under the present strict party organisation. At present the same party must remain in office from one general election to the next; at least the only alternative is a ministry in a minority. Then it will be possible for parties to combine and recombine in the house, and if one ministry be overthrown, to substitute another with a majority behind it. It will then no longer be necessary that a ministry should rely for support exclusively upon one of the two parties. I have no apprehension that this change will injuriously affect our system of ministerial responsibility and party government. In fact this grew up and matured itself during the century and a half previous to the Reform Bill of 1832, when nothing was known of the strict party organisation which majority voting acting on numerous large constituencies has since produced, and when a considerable proportion of the members were either independent of, or very loosely attached to, either of the principal parties.

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* That this is not true at present of France or Germany, or Italy, may be due partly to representative government having only been for a short period in free operation there, and partly to the ballotage (or second election, if no absolute majority) allowing more than two parties to contend against each other at the first voting.

The Caucus or Nominating Convention.

The so-called "caucus" system for selecting candidates is also entitled to a place among the evils of majority voting, when we are dealing with countries like the United States and Great Britain, where secret voting has been introduced without any provision for ballotage. This caucus system has for many years been firmly established in the United States, and the experience of a single general election under the Ballot Act of 1872 led to its introduction into 67 English constituencies (Mr. Chamberlain, "Times," 13th April, 1880), and I expect before long to see it much more extensively adopted. In fact the caucus or nominating convention offers a plausible solution in a popular form of a difficulty which the introduction of secret voting has not, indeed, created, but greatly increased, viz., the difficulty of ascertaining which of several candidates proposed to a party is most popular with the party. With the English or American form of ballot it must be decided beforehand for which candidates the party is to vote. So long as there was open voting, a party with a considerable majority did not run much risk of being defeated, even if two rival sections of the party insisted on each bringing its candidate to the poll, for the voting of the first two or three hours would usually show which candidate was likely to succeed, and then the other would withdraw while the party had still sufficient votes unpolled to secure the election for its remaining candidate. But under the ballot there is no indisputable mode of ascertaining how the election is going on, and therefore nothing to induce one of two rival candidates to retire. The "caucus" remedy for this is to entrust the selection of the candidates to a representative body, elected by the electors of the party. This looks at first sight like a fair and equitable arrangement, but two obstacles to its satisfactory working have been found to exist in the United States. (1) These elections to nominating conventions are outside the law, and there is nothing but public opinion and lynch law to check bribery, corruption, and all kinds of trickery and violence. (2) A large proportion of the electors would not, under any circumstances, trouble themselves to vote at any additional elections besides those authorised by law, and the remainder of the respectable electors have found that it is on the one hand useless, and on the other unpleasant, and even dangerous, to take part in the elections to these nominating conventions. These elections have thus fallen altogether into the hands of the party-managers and their tools, and in consequence, as Mr. Simon Sterne, of New York, testifies ("Personal Representation," p. 88), "The far greater number of members of the convention are either directly bought with "money, or with promises of office. As a matter of accident, an "honest man may be returned to a nominating convention, but as "a general rule they are of the most pliant and corrupt of party "tools." As these conventions nominate the party candidates, it is not surprising that there should be in state legislatures, and even in congress, a considerable number of members accessible to corruption.*

As yet the caucus system in England has had no time to develop the evil characteristics of its American prototype, but I can see nothing likely to prevent like causes from producing like effects in the course of another twenty or thirty years, unless something is done to enable individual electors to decide independently of the caucus between the rival candidates of their party, without giving up majority voting. This might be done by adopting the French, Italian, and German practice of having a second election whenever an absolute majority of the votes polled has not been obtained at the first election, and only allowing the candidates highest in the poll to compete at this second election. This enables separate sections of a party to run separate candidates at the first election, and try their strength against each other, and then unite at the second election to support whichever of their candidates is still left in the competition.

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* See Sterne, "Personal Representation," p. 91; Sydney G. Fisher, "Trial "of the Constitution," Lippincott, Philadelphia, 1862, p. 346; Ezra Seaman, "American System of Government," p. 63.

The following table, compiled from the "Statistica Elettorale "Politica," published by the Italian Government in 1876 and 1880, shows how extensively these facilities for running more than two candidates against each other are made use of:—

Date.	Constituencies.	Number of Candidates who obtained more than Ten Votes.								Elected at First Voting.	Ballotage.	Reversals of First Election.
		1.	2.	3.	4.	5.	6.	7.	8.			
1870	508	53	222	116	71	34	10	1	1	165	343	67
1874	508	68	252	131	37	17	3	–	–	271	237	37
'80	508	69	332	81	21	5	—	–	–	358	150	29

No Italian constituency returns more than one member.

The ballotage column includes cases where a sufficient proportion of the electors did not vote, as well as cases where no candidate obtained an absolute majority.

The last column comprises the cases in which the candidate who was highest at the first voting is unsuccessful at the ballotage, a result which would be usually, though not always, due to the party ultimately successful having divided their votes between several candidates at the first voting, and combined upon a single candidate on the second election.

When the Ballot Act of 1870 was passing through the House of Commons, Sir Charles Dilke gave notice of an amendment introducing the ballotage, but, owing to the anxiety of the ministry and the bulk of the liberal party to pass this Bill without delay, this amendment was not discussed, any more than another amendment put forward by Mr. Walter Morrison, and which proposed to secure to the electors individual liberty of choice, without a second election, by a modification of Mr. Hare's preferential vote. Mr. Ashton Dilke has this session introduced a Bill providing for a ballotage, whenever a seat is not filled by an absolute majority at the first election.

Before selecting any system of minority representation or proportional representation for adoption instead of majority voting, it will be necessary to make sure that it does secure individual liberty of choice to the electors, and will not compel them to put themselves into the hands of the party managers, and vote as they are directed.

Limited Voting.

I shall now proceed to describe some of the other methods of voting which it has been proposed to substitute for majority voting. Among these it is convenient to begin with limited voting, because that method differs much less from majority voting than any of the others I have to notice. The only difference is that while in majority voting an elector may vote for as many candidates as there are representatives to be elected, in limited voting he is only allowed to vote for a smaller number, say for two out of three, three out of four, or fourteen out of twenty. This will enable the minority party to secure one or more representatives, provided it is not much inferior in numbers to the majority. In limited voting, as in majority voting, an elector may not give more than one of his votes to the same candidate.

By the Reform Bill of 1867 limited voting was applied, the city of London returning four representatives, and to four boroughs and seven counties, each returning seven members, to which the Scotch Reform Bill of 1868 added Glasgow. Thus it is applied altogether to 40 members out of 658. This same method of limited voting was introduced into Brazil in 1875 on a much more extensive scale. According to an account which M. Ernest Naville has given of the new Brazil law, in "Les Progrès de la Réforme Electorale en "1874 et 1875," pp. 5 and 6, limited voting is applied alike to municipal, provincial, and national elections, with the exception of the senate. Whenever a constituency has more than two representatives, each elector may only vote for two-thirds of the representatives to be elected. Out of 20 provinces 7 return only two members apiece to the National Chamber, but the other 13 return from 3 to 20 members apiece. For the elections to provincial assemblies the number of representatives varies from 20 to 45. The elections are at present by two stages, as had been the case before the introduction of limited voting, the limited voting being applied to both stages of the election. M. Naville mentions that there was much opposition to these two stages, and according to a telegram published in the "Times" of 6th May, 1880, the Government was bringing in a Bill substituting direct election for election by two stages, and creating electoral districts, each returning a single member. If this Bill passes it would of course do away with limited voting. I have not heard of limited voting being applied to the election of deliberative assemblies except in England and Brazil. In New

York it has been applied to the election of judges, and in Pennsylvania and other North American States, and also in Switzerland, to the election of officers to superintend elections and see that both parties had fair play.

In England limited voting has been tried at three general elections. The same causes which render an election by majority voting usually a contest between only two parties, apply also to limited voting, and therefore none of the evils I have shown to result from this, and from these contests being frequently decided by narrow majorities, are cured by substituting limited voting. The chief recommendation of limited voting is that instead of all the representatives of a constituency being assigned to the majority, the minority can secure a share, provided it be not much inferior in numbers to the majority. This giving the minority a share of the representation has, I consider, had a beneficial effect by counteracting the tendency of each of our two political parties to become specially connected with particular kinds of constituencies and to almost exclude from other kinds. For many years previously to 1867 the liberals used almost to monopolise the larger boroughs, and the conservatives the agricultural counties. The introduction of limited voting permanently secured to the conservatives a certain though limited number of representatives of large boroughs, and to the liberals a limited number of representatives of agricultural counties. Few as these representatives are, they are able in two different ways to do a great deal to strengthen the position of their party in the kind of constituencies which have returned them as minority members: (1) Their speeches in parliament and to their constituents will naturally present the views of their party in the form best calculated to be understood by and to win the approval of their own and similar constituencies; (2) In the councils of their own party they will be able to insist upon much greater respect being paid to the interests of their own and similar constituencies and to the views prevalent there, than would be paid to these constituencies if they were without representatives.

This tendency of different political parties to become specially connected with particular kinds of constituencies, and to be excluded from the representation of and altogether silenced and crushed in other kinds of constituencies, assumes a much more dangerous form when these constituencies instead of being locally interspersed and mutually dependent, are situated in different parts of the country, as was the case in the United States before the civil war of 1861. If the republicans instead of being an exclusively northern party, had comprised a certain number of minority representatives from the south; and the democrats, on the other hand, had included a much larger number of northern members than actually were comprised in it, the opposition between the two parties would never have developed into a civil war. The southern democrats would not have been driven into rebellion through distrust of the republicans, if they had seen in the republican ranks a number of their own neighbours and friends; while, on the other hand, if the republican members of congress had comprised a certain number of southerners, the whole party would have been disposed to deal with slavery with very much greater respect for the vested interests of the slave owners.

The opposition between Buenos Ayres and the other provinces of the Argentine Republic, which has repeatedly broken out into civil war, and that between the Roman Catholic provinces of Ireland and the rest of the United Kingdom have, I feel no doubt, been very much aggravated by the exclusive representation of majorities.

On the other hand, limited voting has some serious defects :—

(1.) It does not give the minority anything like its fair share of the representation. If there are three representatives to be elected, the majority can secure them all, unless the minority amounts to two-fifths of the voters, while, under cumulative voting and other proportional methods, as will be shown further on, any minority exceeding one-fourth can secure one seat out of three. With limited voting and four representatives, the minority must amount to three-sevenths of the voters to get one representative, while, under the proportional methods, one-fifth of the voters would be sufficient.

(2.) When the majority is sufficiently strong to secure all the three or four seats, provided its votes are properly distributed among its candidates, it is tempted to establish a very thorough organisation to secure that these votes be equally distributed, although each elector can only vote for two out of the three candidates of the party, or for three out of the four. Moreover, there is always a risk of the party's strength having been miscalculated, in which case the party would probably only obtain one representative for its majority, the other two or three going to the minority.

(3). When each party runs two candidates for three seats, only one of the defeated party's candidates will be elected. Which candidate this will be will depend upon one candidate getting split voters from the other side, or else from his receiving plumpers from some of his special friends, or from some electors who dislike his colleague. By however much one candidate may be more popular than the other, the bulk of the party cannot secure that he should be the one elected, nor can the candidates make any arrangement to secure this. At least, they can only do this by arranging that the one candidate should receive a certain number of plumpers, and this would greatly diminish whatever chance the party might have of carrying both candidates.

(4). Limited voting does not work satisfactorily where, as sometimes happens even in England, an election is not a simple contest between two parties. The last election for Berkshire is an instance of this. It was a contest between Mr. Walter and another liberal for the minority seat.

Cumulative Voting.

I next come to cumulative voting, which is well known from being employed in England for the election of school boards under Mr. Forster's Education Act of 1870. In the previous year, 1869, it was introduced into Illinois for the election both of the State house of representatives and the governing bodies of municipalities and joint stock companies. It was subsequently, in 1871, applied in Pennsylvania to the election of municipal councils. In 1867 the English advocates of minority representation originally attempted to apply cumulative voting to the city of London and the three-cornered constituencies, but Mr. Lowe's amendment in favour of cumulative voting was rejected in the House of Commons, and the provision for minority representation, which was subsequently introduced in the House of Lords, took the form of limited voting.

Many years previously to this cumulative voting had been introduced into a constitution granted to the Cape Colony in 1863.* From 1853 to 1874 the legislative council was elected by cumulative voting by two districts returning respectively eight and seven representatives. Since 1874 it has been elected by seven districts, each returning three representatives. The report of the committee of council mentioned in the footnote,* has been frequently referred to, owing, I believe, to its being quoted in Mr. Garth Marshall's pamphlet in favour of cumulative voting ("Minorities and Majorities," Ridgway, 1853), but the fact that this report has been acted upon, and that cumulative voting was in operation at the Cape, was altogether lost sight of during the frequent discussions on minority representation between 1866 and 1871. I have no information as to the working of cumulative voting at the Cape beyond the fact that, although the law of 1874 altering the constituencies for the legislative council was under discussion for two sessions, the only proposal to abolish the cumulative vote, one made in the legislative assembly 10th May, 1873, was negatived without a division. This I have ascertained from the proceedings of the Cape legislature for 1873 and 1874.

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* See the Cape Constitution of 1853, an ordinance confirmed by the Privy Council, House of Commons Papers, 1852-53, vol. lxvi, p. 371. This was done in pursuance of the recommendation of a Committee of the Privy Council, whose report is to be found in the House of Commons Papers for 1850, vol. xxxviii, p. 216; p. 105 of Correspondence.

In cumulative voting an elector may either give all his votes to the same candidate or divide them among several. Usually, in cumulative voting, each elector has as many votes as there are representatives to be voted for, but this is not essential. The method of voting remains substantially the same whether the electors have a larger or smaller number of votes to distribute, or even if each elector has only one vote.

Best Number of Votes under Cumulative Voting.

The number of votes assigned to each elector to distribute is of importance for only one reason, viz., because it is more convenient for a party which is supporting several candidates, that each elector should be able to divide his votes equally between the candidates of the party. If the electors have each 13 votes, or 11, or 7, or 5, as is the case in many of the school board elections, a party which runs two or three candidates cannot without a somewhat elaborate organisation secure that the votes of its adherents will be equally divided between its candidates. But if twelve votes had been assigned to each elector, a party running two, three, four, or six candidates, would be able with the utmost ease to secure that its voting strength was divided equally between them. It would only have to request each of its adherents to divide his twelve votes equally between the two, three, four, or six candidates. Twelve seems the best number to select for this purpose, as 60 and 120 are the only numbers which recommend themselves as having additional divisors, and they are both of them inconveniently large.

How few Electors can obtain a Share of the Representation.

In cumulative voting the choice of the representatives for a constituency is not limited to a single party, as in majority voting; nor to two parties, as in limited voting. Cumulative voting enables any number of electors who may combine together and exceed a certain fraction of the constituency, viz.:—

$\frac{1}{4}$th where there are 3 representatives.
$\frac{1}{5}$th ,, 4 ,,
$\frac{1}{n+1}$,, n ,,

to obtain a share of the representation approximately proportional to their number. This admits of being easily proved.

Suppose that a constituency has to elect n representatives, that V electors vote at the election, and that each elector has m votes.

Let $\frac{mV}{n+1}+i$ be the next whole number greater than $\frac{mV}{n+1}$, then $\frac{mV}{n+1}+i$ votes will be sufficient to elect one representative.

For if $\frac{mV}{n+1}+i$ votes be given for each of n candidates, the votes remaining undisposed of will amount to—

$$mV-n\left(\frac{mV}{n+1}+i\right)$$
$$=mV-\frac{nmV}{n+1}-ni$$
$$=\frac{mV}{n+1}-ni,$$

which is manifestly less than $\frac{mV}{n+1}+i$, and therefore the votes remaining undisposed of could not (even if all concentrated on the same candidate) displace any candidate who had obtained $\frac{mV}{n+1}+i$ votes. Consequently $\frac{mV}{n+1}+i$ votes are sufficient to secure the election of one representative, and obviously twice as many votes will be sufficient to elect two representatives, and generally the number of votes required to secure the election of r representatives will be $r\left(\frac{mV}{n+1}+i\right)$.

$\frac{mV}{n+1}+i$, *i.e.*, the whole number next greater than the quotient obtained by dividing mV, the number of votes, by $n+1$, will be called the quota.

To make this important proposition more intelligible to those who do not readily understand mathematical symbols, I will apply the same reasoning to a numerical example.

Suppose that the constituency has to elect 9 representatives, and that 10,000 electors vote, each of whom has 12 votes, then 12,001 votes will be sufficient to elect one representative, 12,001 being the next whole number greater than $\frac{12\times 10{,}000}{9+1}$ or $\frac{120{,}000}{10}$ *i.e.*, greater than

$$\frac{\text{the total number of votes polled}}{\text{one more than the number of candidates to be elected}}$$

For if 12,001 votes be given to each of 9 candidates, the votes remaining undisposed of will be—

$$12 \text{ times } 10{,}000-9 \text{ times } 12{,}001$$
$$=120{,}000-108{,}009$$
$$=11{,}991$$

and as this is manifestly less than 12,001, the votes left undisposed of could not, even if all concentrated on the same candidate, displace any candidate who had obtained 12,001 votes.

Consequently 12,001 votes (12,001 being the next whole number greater than $\frac{1}{9+1}$, *i.e.*, $\frac{1}{10}$th of the whole number of votes) are sufficient to secure the election of one representative.

Also 12,001 votes is the smallest number of votes which will do this. For, if the 9 candidates had only 12,000 votes apiece instead of 12,001, there would be 12,000 votes left, and if these were all concentrated on the same candidate, he would "tie" the others, and the result of the election would be uncertain.

In ordinary cumulative voting owing to the irregular manner in which (owing to a cause to be hereafter explained) the votes are usually distributed among the successful and unsuccessful candidates, a number of votes considerably less than my theoretical quota $\frac{mV}{n+1}+i$ will usually be sufficient to make a candidate practically safe of getting in somewhere among the successful candidates. But the hypothesis upon which I have proceeded of all the successful candidates obtaining only just enough votes to secure their election, and of the remaining votes being all concentrated on one other candidate, will be practically realised under the transfer methods to be described in a subsequent part of this paper, and the formula I have obtained, $\frac{mV}{n+1}+i$, will then give the quota of votes which it is necessary to retain for each successful candidate when transferring those he does not require. However even for ordinary cumulative voting my quota is of use as giving the least number of votes that will make a candidate *absolutely* safe. From the preceding calculations it is manifest that under cumulative voting any number of electors who may combine together to support one or more candidates will be able to secure their election if the votes they command are equal to or greater than the number required for electing so many representatives, provided the two following conditions are fulfilled, *i.e.*, provided (1) the combining electors or their leaders know their own strength, and put forward no more candidates than they can expect to carry, and provided (2) they are able to arrange that all the votes of the party shall be distributed equally between their candidates.

Subject to these conditions, not only *the* minority, but every minority of a certain size, will be able to obtain a share of the representation. The size of the smallest minority which can obtain a separate representation for itself will be limited by the number of representatives to be elected by the constituency.

It must be always greater than $\frac{V}{n+1}$, V being the number of

electors, *i.e.*, for 3 representatives it must exceed $\frac{V}{4}$
,, 7 ,, ,, $\frac{V}{8}$
,, 15 ,, ,, $\frac{V}{16}$

For the school board elections the number of representatives to be elected varies from 4 in some of the London districts to 15 in some of the largest boroughs. The Illinois house of representatives and the Cape of Good Hope legislative council are elected by districts each returning 3 representatives. From 1853 until 1874 the Cape legislative council had been elected by two districts, returning respectively 8 and 7 representatives.

Cumulative Voting, where Defective.

The weak point of ordinary cumulative voting is that no body of electors holding particular views can make absolutely sure of obtaining the share of the representation to which their numbers entitle them, without establishing an elaborate and expensive party organisation. In order that they may secure as many representatives of their views as possible, they must combine into a party and ascertain by a general canvass how many votes they are likely to command, and thence determine how many candidates they should run, and select their candidates. They must also arrange that the voters of their party shall distribute their votes equally among the candidates of the party.

In the absence of such an organisation as I have described, an election under ordinary cumulative voting becomes, to a great extent, a matter of chance. Candidates come forward independently holding nearly the same views, and it is impossible for an individual elector to find out upon which of them his votes may be most advantageously bestowed, so as to secure for the opinions he favours as large a share of the representation as possible. Even when all the candidates for a party co-operate, party managers can, in the absence of a sufficient organisation, only guess at the proper directions to be given to their party.

In most parliamentary boroughs outside the metropolis, electoral organisations have been formed by the two parliamentary parties, for conducting parliamentary and municipal elections, and in consequence, the school board elections in such boroughs have usually become almost entirely contests between the lists of these two parties. The Roman Catholics bring forward their own candidates whenever they are sufficiently numerous to have a chance of securing one or more representatives; but it does not often happen that other sections of the electors bring forward independent candidates. One reason for this is, that it would involve the trouble and expense of separate organisation. Another is, that even if an independent section succeeded in electing its own candidates, the parliamentary party of which they formed part would probably obtain altogether fewer representatives than it was entitled to, owing to the confusion produced through the party being canvassed by rival sets of candidates.

In the metropolitan boroughs, on the other hand, where party organisations are much less developed, they take but little part in the school board elections; and altogether very little is done to organise the electors into parties, or to direct them how they may most advantageously employ their votes so as to secure for their respective views as many representatives as possible. Many candidates who prove successful, come forward independently and merely try to secure as many votes as possible for themselves, while, if several candidates try to co-operate, they are liable to find their calculations upset through some independent candidate with nearly the same views, attracting away the votes they had reckoned upon. In many of the metropolitan school board elections, more than half the votes given have been plumpers in favour of a single candidate.

Constituency.	Numbers.	Date.	Plumpers.	Total Votes.
Lambeth	5	1870	59,920	117,264
Marylebone	7	'73	63,175	125,822
Southwark	4	'70	21,488	34,243
,,		'73	17,756	26,961
Tower Hamlets	5	'73	74,186	123,891
,,		'76	52,010	93,940
Chelsea	5	'79	22,372	38,386

In the proceedings of the Cape of Good Hope legislature for 1874, I found the details of an election of eight members of the legislative council of that colony by a constituency comprising half the Colony. I found that more than half the voters concentrated all their votes on single candidates. This election took place in 1873, after the electors had been using cumulative voting for nineteen years, when it may be reasonably supposed that they had learnt the best mode of using their votes. The record of this election was part of the materials laid before the legislature of the Cape Colony in 1874, when the two constituencies electing eight and seven members, were replaced by seven constituencies each electing three members.

The independent selection of individual candidates by the voters, is more favourable to the election of the best candidates, than if the bulk of the electors vote according to party lists, but it becomes very much a matter of chance whether the holders of any particular set of views obtain as many representatives as they are entitled to. Moreover, under this *régime* of independent selection, there is always considerable uncertainty about the success of even the most popular candidate. He may lose votes he requires through his friends supposing that he is safe, and that they can employ their electoral power more advantageously in endeavouring to give him a colleague with similar views. For instance, in the Tower Hamlets, Mr. Pearce was second on the poll in 1870, with 20,867; in 1873 he was defeated with only 10,682 votes, and in 1876 he was first with 22,470 votes. Similarly, Professor Gladstone and Mr. Mills, who had both been defeated in 1870 for Chelsea and Marylebone, were at the head of the poll for those constituencies in 1873, Mr. Mills having three times as many votes as any unsuccessful candidate. So again, Sir Charles Reed was at the head of the poll at Hackney in 1870 and 1876, with twice as many votes as he wanted, but at the intermediate election of 1873 he was the lowest successful candidate.

If cumulative voting were extended to parliamentary elections, in England, neither the candidates who are now ready to spend from 5,000*l.* to 10,000*l.* for the chance of a seat, nor the partisans who are deeply interested in the victory of their party, would be content to leave the electors to vote independently without organisation. They would no doubt establish in every constituency organisations capable of ascertaining approximately how every elector was likely to vote, and of giving adequate directions to the voters of each party as to how they might secure for themselves the largest number of representatives; and the electors would soon learn by experience that by implicit obedience to their organisations, they were likely to secure the largest number of representatives for their party. In this way parliamentary elections by cumulative voting would, I am afraid, fall as much under the control of party caucuses as elections by majority voting have done in the United States, and probably will soon do in England.

Beneficial Effects of Cumulative Voting.

In some respects cumulative voting has worked very satisfactorily at the school board elections. There have been few if any attempts at bribery or treating, common as these malpractices are at municipal as well as parliamentary elections. This may fairly be attributed to a great extent to these elections not being contests between two nearly equal parties, when success depends upon attaching a small balance of indifferent voters to the one side rather than the other. Moreover, the successful candidates are a superior class to those elected at elections of the same class by majority voting. Thus the members of the London School Board are on the average decidedly superior to the members of the Metropolitan Board of Works. This will in part be due to the higher interest of educational work to religious and philanthropic persons as compared with building and sanitary works. But school board members also compare very favourably with elected guardians of the poor, whose work ought to be equally attractive to the religious and philanthropic, and I believe the superiority of members of school boards to be to a great extent due to a mode of election which enables a suitable person to come forward independently with a confident expectation of being elected, provided he has become known to, and secured the confidence of, a comparatively small section of the constituency.

But, owing to the weak point I have already referred to, viz., the inability of ordinary electors to ascertain how they may use their votes most advantageously, ordinary cumulative voting fails to realise a great deal of what I expect from a more perfect method of proportional representation.

Transfer Methods.

I shall therefore now proceed to describe two methods of voting which are free from this defect, and which I believe to be the best forms of proportional representation that have yet been discovered. One of these, preferential voting, is a thoroughly scientific and complete solution to the problem, but as it involves a considerable amount of sorting and re-sorting of the voting papers, its employment for large constituencies with from 50,000 to 60,000 electors, such as we should necessarily have in England, seems to me beset with somewhat serious practical difficulties. The other of these two methods, which I shall call limited transfer by lists, though theoretically less perfect, would I believe, arrive in practice at a result very nearly as satisfactory, while involving very little more trouble than ordinary cumulative voting.

Both these methods are based on the principle of using for each candidate only as many votes as are wanted to secure his election, and transferring to other candidates all superfluous votes which candidates may have received beyond what they require, and also all votes given to candidates who are found to have no chance of being elected. In the first method (preferential voting) each elector is allowed to designate on his voting paper the other candidates to whom in succession his vote is to be transferred. According to the simplest form of the other method (limited transfer by lists) all the votes which a candidate does not want or cannot use, are transferred together according to a list prepared by the candidate and published before the election.

Preferential Voting.

Preferential voting was devised by Mr. Hare, as part of his well-known scheme of personal representation. It was also independently invented by Mr. Andræ, a Danish minister, for the 1855 constitution for Denmark, Schleswig and Holstein, and has ever since that date been in use in Denmark. At first it was used for the election of the Rigsraad or council of the empire, and after 1863 for that of the Landthing or upper house of the kingdom of Denmark.*

In 1872 Mr. Walter Morrison, in conjunction with Professor Fawcett and other members, introduced into the English parliament a Bill providing for the election of members for England and Wales by preferential voting in constituencies electing from 3 to 16 members apiece.

According to preferential voting, each elector has only one vote, but he may on his voting paper designate any number of candidates to have successively the benefit of this vote. Each voting paper is to be reckoned in the first instance to the first candidate named upon it, but if, when all the votes have been so distributed, it is found that any candidate has more votes than are sufficient to secure his election, the surplus of his voting papers will be redistributed and be given to the candidates next in order of preference thereon, excluding of course those who have already obtained sufficient votes. The result of the first redistribution of votes will be that no candidate retains more votes than are sufficient to secure his election, all superfluous voting papers having been transferred to other candidates and thus utilised. In M. Andræ's method the transfer of votes ceases here, and those candidates who have obtained most votes are at once declared elected. Mr. Hare, however, and this is a great improvement, proceeds to exclude from further competition one by one the candidates who have the fewest votes, and redistribute their voting papers, each voting paper being transferred to the next candidate in order of preference thereon, who remains in the competition. This process of exclusion and redistribution is continued until there is only one candidate remaining beyond the number of representatives to be elected; then obviously the candidate with fewest votes among those remaining must be excluded, and the others will be elected.

Under this method of preferential voting (provided no more votes are retained for a successful candidate than are sufficient to secure his election) it will be immaterial if a party runs too many candidates, or divides its votes unequally between its candidates. If too many votes are in the first instance accumulated upon one candidate, he will only keep as many as are required to secure his election, and the rest will be distributed among the other candidates of the party, and through the successive exclusion of the candidates with fewest votes, will be ultimately concentrated upon as many of them as the voting strength of the party is sufficient to elect. To ensure this, it is only necessary that every elector of the party should designate on his voting paper, in some order or other, all the candidates of the party.

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* The present Lord Lytton's very able report on the Danish method, House of Commons Papers 1864, vol. 61, p. 24 of No. 7, relates to the Rigsraad as it existed up to 1863. The law now in force as to the election of the Landthing, dates from 1866, and has been translated into French. (Leon de Thozée, "Réforme Electorale." Bruxelles, 1874.)

Proper Value of Quota.

It is however essential to the complete success of the method, that no more votes should be retained for a successful candidate than are required to secure his election. I have shown *ante*, p. 17, that if mV be the number of votes, and n the number of representatives to be elected, $\frac{mV}{n+1}+i$, the next whole number greater than $\frac{mV}{n+1}$, will always be a sufficient number of votes to secure a candidate's election. Mr. Hare and M. Andræ, however, both fixed upon a larger number, viz., $\frac{mV}{n}$, as the number of votes to be retained for each successful candidate. As $n=658$ in the scheme to which Mr. Hare applies his method, the difference between $\frac{V}{n}$ and $\frac{V}{n+1}$ is too small to be of any practical importance; but when constituencies return from 3 to 8 representatives apiece, as is the case in Denmark, and would probably be so in England if proportional representation were introduced here, the difference becomes considerable. Suppose, for instance, that the election is a contest between two parties of which one commands 360 votes and the other 340, and that each party runs 4 candidates for seven seats; then M. Andræ's quota will be $\frac{360+340}{7}=\frac{700}{7}=100$, while mine will be $\frac{700}{8}+i=88$. Consequently, if the 360 voters should divide their first votes so as to give originally to each of three candidates 100 or more votes, say 110, 104, and 100, their fourth candidate will originally have only 46 votes, and will obtain by transfer with M. Andræ's quota only 14 additional votes, and thus he will not get altogether more than 60 votes, and therefore if the 340 can by organisation arrange to divide their first votes so that each of their four candidates has originally more than 60 votes (which would not be difficult, as a equal division would give each of them 85 votes) they will carry the odd candidate. On the other hand, with my quota, the fourth candidate will get by transfer (however the votes may be originally distributed) $360-3\times 88=360-264=96$ votes, and it will be impossible for the 340 to place all their four candidates ahead of those of the 360. Therefore, with my quota, nothing can be gained by dividing the votes equally, or lost by dividing them unequally, while with M. Andræ's and Mr. Hare's quota there will always be a possibility of gaining by this, and therefore it may be worth while in an important election, to organise and ascertain how many candidates the party's votes can carry, and arrange for such votes being divided equally between these candidates, the very thing which preferential voting is intended to render unnecessary. I have been told by more than one Danish gentleman that in Denmark, when the electors meet, there is a great deal of calculation and arrangement as to how they should distribute their votes among the candidates. In Denmark the electors who vote according to this method I believe rarely if ever exceed three or four hundred (these being secondary electors, elected for the purpose by the primary electors), and they are all assembled in one place. Consequently these arrangements do not involve any great amount of trouble, nor interfere materially with the liberty of the individual electors. But with constituencies of 30,000 or 60,000, such as we at present have in England in our large boroughs, and should probably retain undivided under proportional representation, any such arrangements would be very expensive and troublesome, and would throw a great deal of power into the hands of the organising committees.

Selection of Votes to be Redistributed.

In preferential voting (as I have already mentioned) after the voting papers have been distributed in the first instance according to the first candidate upon each, the surplus voting papers of any candidate who has more than he requires are redistributed. But how is it to be determined which of his voting papers are to be redistributed? The electors whose voting papers are so redistributed have the privilege of influencing the electors to a greater extent than those whose voting papers are retained for the first candidate. After the first candidate has been declared elected, their voting papers contribute towards determining which other candidates should be elected. Suppose that A's name stands first on 10.000 voting papers, of which he only requires 9,000, and therefore there is a surplus of 1,000 to be redistributed; and suppose further that out of these 10,000 voting papers, 6,000 have B in the second place, while 4,000 have C there. Then B's election might easily depend upon how many of the 1,000 surplus votes to be redistributed were taken out of the 6,000 which had B's name second. If it were practicable it would obviously be the fairest plan to divide all A's voting papers into sets, according to the different names upon them, and take the surplus votes proportionally from the different sets. In the case supposed above, this would be to take 600 voting papers out of the 6,000 on which B stands second, and 400 out of the 4,000 on which C stands second. But the number of different sets of names upon A's voting papers would usually be far too great to allow of this being done. Probably they would contain the names of almost all the other candidates in every possible order, according to the caprices of individual electors. If there were only five such other candidates, their names would admit of being arranged in 120 different ways. The only satisfactory mode of dealing practically * with this difficulty is to let chance determine which of the voting papers appropriated in the first instance to a particular candidate are to be redistributed. According to a well known theorem in the mathematical theory of probabilities, and one which is constantly acted upon in every day life, there is a strong probability that the number of voting papers of each different set which find their way into the surplus by chance, will be very nearly proportional to the total number of voting papers of the same set. In the case supposed above the odds are more than 199 to 1 that of 1,000 voting papers taken by chance out of 6,000 A B, and 4,000 A C voting papers, there will be between 650 and 550 A B voting papers.

The selection of the surplus voting papers by chance may be effected in two ways. According to M. Andræ's Danish law all the voting papers are mixed in an urn, and drawn out one by one, and when as many voting papers have been appropriated to a particular candidate as are sufficient to secure his election, any voting paper which may subsequently be drawn with that candidate's name first, is transferred to the next candidate named therein who has not obtained sufficient votes. One drawback to this method is that possibly some of the later voting papers may contain only the names of candidates who have already obtained sufficient votes, and

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* Professor E. J. Nanson, in a paper read before the Royal Society of Victoria on 8th July, 1880, proposed an ingenious scheme for distributing votes under preferential voting, without allowing the element of chance to intervene. But the directions he gives seem to me far too complicated for an election which is to be managed by ordinary retaining officers, and if challenged, investigated before election judges. Moreover, his method does not seem to me equitable. Instead of taking the votes to be retained for the successful candidate proportionally out of all the groups of votes upon which his name stands first, but with different second names, he takes them altogether out of the larger groups, allowing the smaller groups to be transferred undiminished to the second candidates. To take the votes proportionally out of all the groups would make the process even more complicated than it is.

may thus be lost, but this might be remedied by exchanging any voting papers which are thus liable to be lost for some of the voting papers which had been previously appropriated to the same first candidates, but contain other names to which they can be redistributed. The second method, the one I have adopted in this paper in describing preferential voting, is to distribute all the voting papers in the first instance according to the first candidate named on each, and then as a subsequent process to take away and redistribute as many of the voting papers belonging to each candidate as he does not require, going through his voting papers in some order fixed by chance, but passing over any votes which cannot be transferred to some other candidate. If this plan be adopted, it is necessary to distribute the surplus votes of the different candidates one by one, and I consider the best plan to be to take them in order according to the number of surplus votes each has to redistribute, beginning with the largest number of surplus votes. As the redistribution proceeds the proportion of votes which cannot be transferred to any other candidate, because all the candidates named upon them have obtained the quota, will increase; and therefore it is best to leave to the last the sets in which the surplus votes to be redistributed form the smallest proportion of the votes out of which they are to be taken. Where the whole number of voting papers to be distributed is small, M. Andræ's method will probably be found most convenient, but where there is a large number of votes to be distributed, the second method will be found to occupy much less time. With M. Andræ's method the whole of the voting papers must be distributed one after another in order by the same set of officials, and therefore distributing 50,000 voting papers would take one hundred times as long as 500. With the second method the original sorting of the voting papers according to the first candidate named upon each may be divided among several different sets of clerks, and the portion of the process which must all be done by one set of officials need not at any rate begin before the redistribution of the surplus votes not required by the first candidate named upon them.

Whichever of these two methods be adopted, the order in which the voting papers are taken must depend entirely upon chance, and not upon the officials who distribute the votes, as by altering the order they might cause one candidate to be elected instead of another. Also the voting papers ought to be numbered so as to show the order in which they are taken, so that it may be possible to repeat the whole process if there should be a scrutiny. If on a scrutiny the votes might be taken in different order, the scrutiny would be no real check on the officials. Also candidates defeated by a few votes would be tempted to try whether they might not have better luck on a fresh redistribution. It would also be desirable to mark each voting paper to indicate to whom it was appropriated, and how it was transferred. If so, upon the process being repeated on a scrutiny, any particular mistake that had been committed would at once be discovered. It seems to me very important that the whole process of distribution and redistribution should be capable of being subsequently checked; otherwise the result would, to a considerable extent, be placed in the hands of the officials who distribute and redistribute the voting papers. The other persons present as representatives of the different candidates, could only imperfectly check such a complicated process as the distribution of voting papers would be, and if no exact repetition of the whole process on a scrutiny were possible, any objections they might take would have to be summarily decided by the returning officer.

When is Preferential Voting Practicable?

More than thirty years of experience in Denmark, as well as certain experiments in the United States, Belgium, and Italy, have established that with an educated constituency not exceeding a few hundred electors, the working of the preferential vote does not present any serious difficulties. I say an educated constituency, because all the experiments I am acquainted with, with two exceptions, viz., a working man's bank and a co-operation society, both established at Sampierdarena, in Italy (E. Naville, "Les Progrès de "la Réform Electorale en 1874 et 1875." Georg. Geneva, 1876, p. 48; "4th Bulletin of the Italian Proportional Representation "Association," p. 460), have been made with educated constituencies, but I do not anticipate that want of education on the part of the electors will interfere materially, provided their minds are not confused by having more than eight or ten candidates to choose between, and provided that the limited area of the constituency gives the electors opportunities of seeing and hearing these candidates, and reading and hearing discussions about their respective merits. No doubt many of the electors will adopt lists prepared by others, but as no one list would have such an advantage over all others as the lists recommended by the party managers have under majority voting, there will usually be a considerable number of competing lists, and choosing among these lists will sufficiently elicit the independent views of the electors. As for the mechanical act of voting, if the names of the candidates proposed were printed on the voting papers, and each elector had merely to add numbers indicating for which candidate his vote was to be used first, for which second, and so on, every elector who could read and write, as well as a large proportion of those who could not, could be readily taught to mark the voting paper according to a list. There would be no more difficulty in this than in marking the ballot papers with other numbers in cumulative voting.

Preferential Voting Difficult with Large Constituencies.

But it is a much more doubtful question whether the results of experiments with a few hundred voters can be relied upon as proving that preferential voting can be worked satisfactorily in large constituencies containing 50,000 voters apiece. According to the registration for 1879 there were four British boroughs which had more than 57,000 electors apiece, and five more which had more than 40,000 ("Times," 29th April, 1880)—

Liverpool	63,946	Finsbury	44,955
Birmingham	63,398	Hackney	43,773
Manchester	61,234	Sheffield	42,794
Glasgow	57,920	Tower Hamlets	41,042
Leeds	49,000		

The difficulty arises from the time which the distribution of such a large number of votes is likely to occupy, assuming it to be effected altogether by one set of officials. To give some rough idea of how long this would take, I shall assume that of the 50,000 electors in the constituency, 45,000 vote, and that the votes of nearly half, or say 20,000, require to be distributed. If the favourite candidate of each side got 16,000 instead of the 6,250 votes which would be required to secure his election, assuming that there are seven candidates to be elected, the surplus votes of these two candidates alone would amount to very nearly 20,000. I shall also assume that three voting papers can be redistributed in a minute. Each has to be taken up, examined, appropriated to a particular candidate, and marked to denote that it has been so appropriated, and although these different processes will probably be performed by different persons who hand the voting papers from one to another, the speed is limited by the necessity of their waiting for each other; besides which, they will all be doing work with which they are not familiar, and the agents of the different candidates will be entitled to superintend each process, and to object if anything is done that they do not at once see to be fair and correct.

Upon these hypotheses, and supposing that the whole of the redistribution of the voting papers for a constituency of 50,000 electors is conducted by one set of persons, it would take

$$\frac{20,000}{3 \times 60} \text{ hours} = 110\tfrac{8}{9} \text{ hours},$$

or more than eleven days of ten hours each.

This calculation is founded on somewhat rough guesses, but unless they are extremely wide of the mark, it shows that the returning officer and his officials will be occupied nearly a fortnight with a single election, unless the work of redistribution can be accelerated by being divided among several sets of clerks. It is not easy to arrange for such a division without giving up the, in my opinion, very essential condition that the voting papers should be distributed in some regular order, independent of any choice by the officials, and that this order should be recorded upon the voting papers, in such a manner that it may be possible to repeat the whole process exactly on a scrutiny. I think, however, that the following arrangement would enable the greater part of the redistribution to be conducted by several sets of clerks without giving up this essential condition, though it is unquestionably rather complicated.

The voting papers to be redistributed may be divided into lots of, say, fifty each, and marked with different letters of the alphabet, and then it may be arranged that in the redistribution the first, second, third, &c., voting papers of the A lot should theoretically precede the corresponding numbers of the other lots, to be next followed by the corresponding numbers of the B lot, and so on. Practically the different sets of clerks would be able to proceed with the redistribution to a great extent independently, unless when any candidate was just obtaining the *quota* or number of votes sufficient to secure his election. At these junctures the different lots must all be brought to the same level, in order that this candidate may receive the voting papers earliest in theoretical order among those transferable to him, and those later in order may be reserved for distribution after he has obtained the quota. At all times the voting papers assigned to the same candidate must be ultimately arranged according to their theoretical order, but except when a candidate is just about to obtain the quota, this need not be done at once, and therefore it will not matter if one set of clerks should work rather faster than another set. By employing a sufficient staff of clerks, the distribution of 50,000 voting papers might, I believe, be completed within two days, if not one.* However, it is manifest that not only the time occupied and the number of clerks employed, but also the mere number and bulk of the voting papers render an election by preferential voting for a constituency of 50,000 electors very much more complicated and troublesome than a similar election with 500 electors, or than any election by majority or cumulative voting. It may perhaps be worth while to incur all this trouble for electing a parliament which has very important functions to perform, but for other elections at any rate, *e.g.*, those of school boards, town councils, and boards of guardians, a simpler and more expeditious process is required, and this the other method I have already partially described seems to me fitted to supply, even if it be not also preferable for parliamentary elections.

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* All these calculations as to the time which the distribution may occupy proceed on the assumption that it will be so managed that a scrutiny may be possible, which involves that the voting papers should be taken in some regular order, and that this order should be recorded. If it be thought advisable to trust the distribution of the voting papers to the returning officer and his assistants without any appeal or check, the distribution might be managed much more quickly.

Limited Transfer by Lists.

This method of limited transfer by lists was originally proposed by Mr. Walter Baily, formerly Fellow of St. John's College, Cambridge, in 1869, in a pamphlet, entitled "A Scheme for "Proportional Representation" (Ridgway), and it was recommended by M. Ernest Naville, in his "Representation Propor-"tionelle pour la France" (Didier, Paris, 1871). According to this method, every candidate is, during the interval between the nomination and the election, to make out a list of the other candidates whom he wishes to have the benefit of the votes he may not himself be able to use, showing the order in which they are successively to have the benefit of these votes. These lists are to be published sufficiently long before the polling day for every elector to be able to know how the votes he may give to a particular candidate are liable to be transferred.

When the polling day arrives, the electors vote by cumulative voting, either plumping for single candidates, or dividing their votes among several. When the votes polled for each candidate have been counted, and the quota required to secure a candidate's election $\left(\frac{mV}{n+1}+i\right.$; see *ante*) has been calculated, the surpluses of those candidates who have obtained more votes than the quota are distributed among the other candidates, each candidate's surplus votes being distributed according to his transfer list.* As it is necessary to lay down a rule as to which candidate's surplus should be distributed first, Mr. Baily begins with the candidate who has the smallest surplus to distribute; and I have followed him in this, as in transfer by lists it is not material whether one begins with the smallest or the largest. The surplus votes of each candidate are first transferred to the first candidate upon his transfer list who has not obtained the quota; but if they are more than sufficient to raise this candidate to the quota, the remainder not wanted for that purpose are transferred to the next candidate on the original owner's transfer list who has not obtained the quota. When all the surpluses have been thus distributed, the candidate who has fewest votes is to be excluded from the competition, and the votes which can no longer be of use to him are to be distributed among the other candidates. The original votes of each candidate are to be transferred according to his own transfer list, while the votes which he has acquired by transfer are to be distributed according to the transfer list of the candidates to whom they were originally given. Of the batches of votes becoming transferable at the same time, the smallest is to be transferred first. When these distributions have been completed, the candidate who has next fewest votes is to be excluded and his votes distributed, and so on, until there is only one more candidate left in the competition than there are representatives to be elected.

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* Mr. Archibald E. Dobbs in 1879 published an able pamphlet on "Repre-"sentative Reform in Ireland" (Spottiswoode), in which he advocated electing 105 members by the electors for Ireland united into a single constituency, by a method similar in principle to Mr. Baily's, but with some ingenious modifications adapted to facilitate electing such a large number of representatives by a single constituency.

Example of Limited Transfer by Lists.

The actual working of this method may be exhibited in a numerical example.

Let the annexed Table (VII) show the number of representatives to be elected in a given constituency, the candidates, and their respective transfer lists, and the votes polled by each.

Then, as the total number of votes polled is 22,040, and there are 5 representatives to be elected, the quota is $\frac{22.040}{6} + i = 3{,}674$. As A and B have each more votes than the quota, they are declared elected, and their surpluses are ascertained, and as B's surplus is the smallest, it is transferred first, and the whole of it (698) is transferred to E. Next, out of A's surplus, 1,921 votes are transferred to F, and, with his original votes, raise F's total to the quota, and he is declared elected. The remainder of A's surplus (1,143) is transferred to G. The surpluses have now all been transferred, and as C has now 3,587 votes, D 2,456, E 2,748, and G 2,327, G has fewest votes, and is therefore to be excluded from the competition, and his votes transferred. The 1,143 votes transferred from A are to be retransferred, and then G's remaining 1,084 votes are to be transferred before A's 1,143. G's 1,084 are transferred to D, and then out of A's 1,143, 87 are transferred to C, raising him to the quota, and 134 more of A's votes are transferred to D, giving him also the quota. Then A, B, F, C, and D, will be the five candidates elected.

TABLE VII.—*Five Representatives to be Elected by Limited Transfer by Lists.*

	Candidates	A.	B.	C.	D.	E.	F.	G.
General Election.	Transfer Lists	F G C D	E C	D A F G	C A G F	B D C	A G C	A F
	Votes polled	6,738 elected	4,372 elected	3,587	2,456	2,050	1,753	1,084
	Quota	3,674	3,674					
		3,064	698 698 to E			698 fr. B		
			0			2,748		
		1,921 to F					1,921 fr. A	
		1,143 1,143 to G					3,674 elected	1,143 fr. A
					1,084 fr. G			2,227 excluded
		1,143 fr. G 87 to C		87 fr. A	3,530			1,143 to A
		1,056		3,674 elected				1,084 1,084 to D
		134 to D			134 fr. A			0
		922			3,674 elected			
Filling up C's vacancy.	Votes unrepresented when C vacates his seat	922 87 fr. C		3,674 87 to A		2,748		
		1,009 1,009 to G		3,587 2,665 to G				1,009 fr. A 2,665 fr. C
		0		922				3,674 elected

The upper part of Table VII shows how these transfers may be practically made.* All the calculations required may be made in half-an-hour on a single sheet of paper, and may be printed and published, so that anyone can test their correctness. This method is therefore much more expeditious than preferential voting, and also very much less troublesome.

Does this give Popular Candidates too much Power?

The only difference between the two methods to the disadvantage of limited transfer by lists, is that, instead of each elector determining to whom his votes are to be transferred, this is determined by the transfer lists of the candidates to whom they are originally given. Mr. Baily originally proposed that each elector should only vote for one candidate, and in that form his method was more open to the objection that it gave too much power to the most popular candidates than it is when associated with cumulative voting. When an elector can only vote for one candidate, the most popular candidates of each party will probably get a disproportionately large number of votes, if the party makes no arrangement to prevent this; and as it would not be worth while to make such arrangements when the transfer by lists method secured that all votes given to one candidate of a party would be utilised to the utmost for the rest, it might easily happen that a popular candidate's surplus votes were by themselves sufficient to elect the first or first and second candidates on his transfer list. But with cumulative voting it is not likely that even the most popular candidates will get a large number of surplus votes. Most electors will prefer to divide their votes, giving the most popular candidate of their party only as many votes as he is likely to want, and distributing the remainder according to their own preferences, instead of allowing them to devolve according to that candidate's transfer list. Even if each elector had only a single vote, distributing votes according to the transfer lists of the candidates would not really give the candidates, as individuals, any great influence on the election. The electors who voted for a particular candidate would know beforehand how his surplus votes will be distributed, and if they were dissatisfied with his transfer list, they would probably vote instead for another candidate of their party whose transfer list was more to their taste. Moreover, a candidate in making up his transfer list would bear in mind that he had not only himself to please but his supporters, and would probably consult his committee as to what transfer list was likely to secure him the largest number of votes; just as a prime minister in forming a cabinet is not influenced so much by his own personal preferences as by the opinions of different sections of his party. Under majority voting popular candidates frequently exercise very considerable influence on the selection of the other candidate or candidates who are to stand with them.

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* I have taken from Mr. Baily's pamphlet the example he originally gave, but have worked it out somewhat differently.

Limited Transfer with Additional Lists.

To meet the objections taken to his plan, on account of the distribution of surplus and useless votes being regulated altogether by lists prepared by the candidates, Mr. Baily subsequently proposed to allow a certain number of electors to propose an additional transfer list for any candidate, so that the electors, when voting for a candidate, might give their votes either to his original transfer list, or to that proposed by these electors. Mr. Baily described the process he recommended for this purpose in a second pamphlet ("Proportional Representation in Large Constituencies." Ridgway. 1871). Table VIII represents what I consider the best mode of carrying out this process. The candidates and the number of votes each obtains are the same as in Table VII. The only difference is that additional lists marked with asterisks have been proposed for three candidates, A, C, and G, and have received part of the votes given to those candidates. The upper half of the table contains the lists and the votes given for them, and the mode in which they are redistributed, and the lower half records how many votes each candidate has obtained, with references to the columns from which they came to him.

The quota is found as before to be 3,674.

As A and B are the only candidates with surpluses, and B's surplus is the smallest, it is distributed first, and 698 E in column (3) denotes that it is transferred to E, and 698 (3) in E's column of votes denotes that 698 votes are come to E from column (3). Next A's surplus is divided proportionally between the two A lists, as the votes belonging to one list are to be transferred to F, and those belonging to the other list to G. Out of the 1,403 votes in column (1) 683 are to be redistributed, and out of the 5,335 in column (2) 2,381, because—

$$\frac{683}{1403}=\frac{2381}{5335}=\frac{3064 \text{ A's surplus.}}{6738 \text{ A's total votes.}}$$

TABLE VIII.

Columns	1	2	3	4	5	6	7	8	9	10
Candidates	A.	A*	B.	C.	C*.	D.	E.	F.	F*.	G.
Transfer Lists....	F G C D	G F D C	E C D	D A F	G D A	C A G	B D C	A G C	A D G	A F D
Votes polled	1,403	5,335	4,372	2,580	1,007	2,456	2,050	1,003	750	1,084
B's superfluous..			698 698 to E							
			0							
A's superfluous..	683 683 to F	2,381								
	0	2,381 to G								
		0								
F excluded	683 209 to G							lost	750 to D	
	474 87 to C								0	
	387 387 to D									
	0									

Quota.	A.	B.	C.	D.	E.	F.	G.
6,738 4,372	1,403(1 5,335(2	4,372(3	2,580(4 1,007(5	2,456(6	2,050(7	1,003(8 750(9	1,084(10
3,587 2,456 2,050	6,738 3,674 Q	3,674 Q	3,587			1,753	
1,753 1,084	3,064 S	698 S					
6)22,040	683(1 S 2,381(2 S						
3,673 2/6 3,674=Q							
			87(1	387(1	698(3	683(1	2,381(2
				2,843 750(9	2,748	2,436	3,465 209(1
	elected (2	elected (1	elected (4	3,593 elected (5 by majority		excluded(1	3,674 elected(3

The 683 votes are distributed before the 2,381 in accordance with the rule for distributing the smallest lots of votes first. When the 683 votes have been transferred to F, and the 2,381 to G; F is excluded as having fewest votes; and of the votes thus set free, the 683 retransferred to A are distributed first; of these, 209 are transferred to G, and 87 to C, raising each of these to the quota, and the remainder to D. When the 750 votes in column 9 have been transferred to D, there are no more votes to transfer. As D has 3,593 votes, and E only 2,748, D is declared elected. The result, as compared with Table VII, is that G is elected instead of F in consequence of a large majority of A's voters having preferred the transfer list (2) which placed G above F. The increased trouble caused by the additional lists, consists, (1) in having to deal with some additional columns ; and, (2) in distributing proportionally the superfluous votes of candidates who have obtained more than the quota, and have more than a single transfer list. Any undue multiplication of lists might be checked, (1) by requiring that the proposers of an additional list should contribute a certain sum towards the expenses of the election; and, (2) by providing that if any additional transfer list did not obtain a certain minimum of votes (say half the quota), what votes it had obtained should be assigned altogether to the first candidate named therein, instead of a proportionate share of them being distributed as superfluous.*

If under either of these transfer by lists methods a candidate should be proposed in his absence, or should for any reason omit to lodge a transfer list, his proposer and seconder might be allowed to lodge a transfer list for him.

Results of Preferential Voting and the Transfer by Lists Method.

Either with preferential voting, or under either of these transfer by lists methods, every individual elector will be safe of having his vote or votes employed to the best advantage to carry out his wishes, and every party or section of a party will be able to obtain a share of the representation in proportion to its numbers without any previous arrangement or organisation. Moreover, all these methods are free from the various evils produced by majority voting. We shall have an approximately proportional representation of all parties, and the relative strength of these parties in the representative assembly will only fluctuate in proportion to the changes of opinion in the constituencies instead of very much exaggerating them. Elections will but seldom turn on narrow majorities, and as it will be very difficult to foresee their doing so, there will be little or no temptation to corruption, extravagant expenditure, or gerrymandering. Whatever is artificial in our present division into two parties will disappear, and members will be much more free to act according to their individual opinions, instead of suppressing them when they differ from those of the leaders of their party.

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* Mr. Baily thought that distributing the superfluous votes proportionally among the different lists, would make the whole process too complicated, and therefore he proposed that of the several lots of votes given for different transfer lists headed by the same candidate, the smallest lot should be first applied to make up the first candidate's quota, and then the next smallest lot and so on, leaving the largest lot or lots to be distributed as superfluous. But this does not seem to me fair. The electors are invited to choose between several transfer lists headed by the same candidate, but whichever list they may select, their votes will really go according to that transfer list which obtains the largest number of votes. Moreover, if any advantage is given to the list with the larger number of votes, there will be a temptation to manœuvre to obtain this advantage.

Filling up Vacancies.

One of the minor difficulties connected with proportional or any minority representation, is the filling up of vacancies. If a minority member dies or vacates his seat, as happened in London in 1869 in the case of Mr. Bell, and in 1880 in the case of Lord Ramsay, a fresh voting for a single member leads necessarily to the election of an additional representative of the majority. Mr. Baily's plans include a solution of this difficulty. When a representative vacates his seat, the table in which the distribution of votes at the general election was recorded is taken out, and it is ascertained what votes are unrepresented. Suppose for instance that Table VII, above the thick black line, represents the distribution of votes at the general election, and that C's seat has become vacant, then the votes unrepresented will be 3,587 original votes of C, 87 votes transferred from A, 922 other votes of A, 2,050 original votes of E, and 698 votes transferred from B, and as the A and C votes are all transferable to G, G will have transferred to him sufficient votes to make up the quota, and will be elected in C's stead. The new member is almost certain to belong to the same party as his predecessor, and usually he will be the first unsuccessful candidate on his predecessor's list. The same mode of filling up vacancies might be employed with preferential voting, provided the voting papers have been preserved, but it would, of course, involve a fresh sorting of all the voting papers which were unrepresented.

If this mode of filling up vacancies were adopted, the candidates under the limited transfer by lists method, or with preferential voting the electors, would usually add some additional names to guard against the possibility of their lists being found exhausted when a vacancy occurred.

I have said nothing in this paper about the method of free lists which has been for the last fifteen years advocated by the Geneva Association for Electoral Reform, and has been greatly altered, and on the whole improved, by M. Morin, M. Naville, M. Gfeller of Lausanne, and others, because this method has never become at all popular in England, and it seems to me, even in its most improved state, very inferior in accurate fairness, as well as in facility of employment by both electors and party managers, to either preferential voting or limited transfer by lists.

Size of Constituencies.

Before concluding I must say a few words upon the mode in which these proportional representation methods should be applied to the formation of a representative assembly. I consider that almost all the evils incident to majority voting are traceable entirely to elections being contests between only two parties and left to be decided by small margins of voters, and would be cured as completely with constituencies each returning seven or even five representatives, as with any larger number. The only advantages so far as I am aware to be anticipated from an increased number of representatives being elected by the same constituency, or even from Mr. Hare's scheme for uniting all the electors of the United Kingdom into one constituency, are (1) that it would probably render the representation of different parties and sections of parties more accurately proportional; and (2) that it would enable some small scattered minorities to obtain representatives. But the same fortuitous causes which under majority voting usually prevent one party from making a clean sweep of the constituencies, and frequently procure parliamentary spokesmen for insignificant minorities would continue in operation under proportional representation with five-member or seven-member constituencies. At the first two trials of cumulative voting in Illinois in 1872 and 1874 the representatives elected were divided between the two parties almost exactly in proportion to the voters supporting those parties respectively, and this was with constituencies each returning only three members.* It is moreover very questionable whether more than a very limited number of highly educated electors would be competent to make a good use of the greater liberty of choice afforded through the constituency having an increased number of representatives. If a limited number of candidates are proposed for a constituency with a limited area, the less educated electors have opportunities of seeing their candidates and hearing them speak, and they also hear and read discussions about them among their neighbours and in the local papers. But if they should be perplexed by having too many representatives to elect, they would be afraid of choosing for themselves, and would adopt blindly any list of candidates that might be recommended to them by their party leaders. But while I submit that constituencies with seven or even with five representatives are sufficiently large to secure the benefits to be anticipated from proportional representation, I should not object to increasing the number of representatives to anything not exceeding (say) fifteen, with the view of uniting in the same constituency the whole of a borough or county the leading members of which have common interests and common places of meeting. In 1871 Mr. Walter Morrison, Professor Fawcett, and Mr. Hughes, introduced into the House of Commons a proportional representation Bill for England and Wales, the schedule to which gives a good idea of how constituencies for proportional representation might be formed, though some of the county constituencies seem to me too large, having regard to the scattered population and the difficulties of communication in rural districts.

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* In 1872 the republicans obtained 85 representatives out of 153 and the democrats, or, as they called themselves in Illinois, the liberals, 68. At the simultaneous presidential election Grant, republican, obtained 240,387 votes, and Greely, democrat, 183,669, which would correspond to 86·7 republicans to 66·3 democrats. In 1874 the republicans obtained 69 representatives with 164,184 votes, and the other party 84 with 196,473 votes. The exact proportional division would be 69·7 to 83·3. If the election had been by majority voting the republicans would have had 99 representatives to 54 in 1872, and 54 to 99 in 1874 ("Chicago "Times," 20th November, 1872; "Chicago Tribune," 21st November, 1872, 24th November, 1874). Both in 1872 and 1874 there were about seven cases of individual constituencies getting misrepresented, through the defects of cumulative voting, but in both years these compensated each other almost completely.

Present Importance of Subject.

In conclusion I would submit that this question of proportional representation has special claims to consideration at the present time, when a further extension of the suffrage in counties and a further redistribution of seats are impending within the next two or three years; and this for several reasons:—(1) It will be much easier to introduce proportional representation, when an extensive redistribution of seats is demanded on other grounds; (2) the difference between the borough and the county suffrage has ever since 1832 been the chief obstacle to one party sweeping the constituencies and obtaining an overwhelming majority; (3) the larger the proportion of uneducated electors admitted to the franchise the more important it becomes to make the instrument with which the electors are supposed to control the government of the country easy to use and difficult to abuse.

Discussion *on* Mr. Droop's Paper.

The Chairman (Mr. R. Biddulph Martin, M.P.) thought the paper which had been read by Mr. Droop was one of great interest, but it required very considerable study before it could be thoroughly appreciated, and as he had not had an opportunity of reading it before coming to the meeting, he hoped to be excused if he abstained from going into a critical discussion of the subject, which was undoubtedly one of great national interest, and could not be too often discussed in such a Society as the Statistical Society of London. The statement made in the paper with regard to the fact of majority voting at Geneva completely excluding the minority ought to be thoroughly digested, as well as that respecting the election of the presidents of the United States. There was another important fact brought out, in respect to the general elections of 1874 and 1880, which was worthy of special notice, inasmuch as it showed the great uncertainty of parliamentary elections. The tables given he thought would be perused by all interested in the question of elections with considerable interest; whilst Mr. Droop had given them a little insight into a subject that must at no distant time occupy the attention of the country, namely, the instability resulting from and the corruption due to narrow majorities. The disclosures made in several parts of the kingdom of late were simply disgraceful. It was of the greatest importance, he thought, whether the electors wished the affairs of the country to be carried on by men of liberal or conservative opinions, that they should know that the men they elected to send to parliament were men elected by a thinking and intelligent body of electors, instead of by persons who neither cared for nor knew the value and privilege of a voice in the representation of the country, as had been too often the case in recent times. By the means set forth in the paper that Mr. Droop had read, he thought it would be possible practically to get rid of these anomalies in elections, and to that extent the paper would be rendering a considerable service to the country. It was a subject worthy of their consideration. The following statement was made in the paper:—"This giving the minority a share of the representation has, I consider, had a beneficial effect by counteracting the tendency of each of our two political parties to become specially connected with particular kinds of constituencies and to almost exclude from other kinds." He (the speaker) thought this to be a very important circumstance. He fancied there was a tendency, to which he had never seen any particular attention drawn, election after election, to seek for candidates dis-associated from the particular constituencies which they proposed to represent. It was almost universally the custom in olden days that a candidate having some local connection was returned; that was to say, that he was either introduced by the patron of the borough, or was known to his constituents by residence or some other local tie. He might now say this custom was gradually being broken through. At the last election there were more candidates, not only for boroughs but for counties, totally unconnected with the places they contested than on any previous occasion. That tendency seemed to be increasing, and if it did so, he need hardly say it would remove one of the greatest objections raised to electoral divisions, and at once give occasion for the creation of electoral divisions rather than local centres, where every constituency puts forward as its representative a man who might be supposed to represent its own particular opinions, irrespectively of the views of the same class of people in another part of the country, or indeed in another part of the same county. There would then be no reason why a man coming from Cornwall should not be elected as member of parliament for some borough in Cumberland, or any other part of the north of England, or why he would not serve the interests of his constituents as well as a man having local ties and interests. In conclusion, he would say that the paper was an admirable one, and the Society must feel indebted to Mr. Droop for the trouble and pains he had taken in bringing the question of electing representatives so ably and comprehensively under its notice, and in the name of the Society he ventured to tender Mr. Droop its most hearty thanks.

Mr. THOMAS HARE next addressed the meeting. He said he had had the honour of reading a paper on the present subject before the Society twenty years ago, which would be found in the record of its transactions.* In that paper, as well as in one read at the Manchester Congress of the Social Science Association in 1879,† he had pointed out briefly the nature and degree of change which his proposed system of election would effect both in action and result, first, in regard to the election individually and collectively, secondly, in all local and other constituencies, and thirdly, as regards the candidates for seats in Parliament. The proportional system of election left the laws which conferred the suffrage entirely unaffected, its object being to give the voter a more extensive choice of candidates, whilst every voter in the kingdom would have the same political right and power—a power of joining with others of the same opinions to elect the member who was to represent them, nothing being required from the voter above the capacity of anyone who could now vote. The system would give an impulse to every upright and patriotic sentiment, both of the individual voter and the borough or other constituency. After explaining the nature of the voting papers, Mr. Hare went on to say that the mode of computing and appropriating the votes would not prove a more complicated process than that of sorting and distributing the letters at the post office, and far less so than the work daily gone through at the bankers' and railway companies' clearing houses. What they wanted in an alteration of the present system of elections was to put an end to the utterly unjust inequalities of the present distribution of electoral power by rendering it in every district the same, and at the same time to cause every thoughtful voter to feel it to be his absolute duty to record his vote, as the vote would be certain to have its effect, and not as now, to be often useless or thrown away. At the same time, corruption, at present fostered and promoted by the unnecessary and artificial value given to the votes within a limited area, would be sapped at its very root. It was not necessary to go into a critical analysis of Mr. Droop's paper, which they could not possibly deal with in the time at their disposal. The details of the system might be varied. Different forms of application had been suggested. He had shown in the paper printed in the transactions of this Society that the system of cumulative voting could be universally applied preferentially, and that it would not be more difficult to compute the votes and ascertain their result at the end of every election than it is to manage the affairs of other departments of the State.

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* Vol. xxiii of the Society's *Journal*, p. 337.

† "Distribution of Seats," &c., published by the Political Tract Society, 31, Tavistock Street.

Mr. Walter Baily did not concur with Mr. Hare in his view of the possibility of carrying out on a large scale the work of electing representatives. Mr. Hare had compared it to the work of the post office, but there was a great difference between duties performed day after day in the same way and duties performed at intervals of several years. When they had to deal with great numbers it was absolutely essential, he thought, that what each individual had to do should be made as simple as possible, because people were very apt to make mistakes. Even in the present system of the ballot there was considerable difficulty in sorting the papers, although each member had only to put down two or three crosses on his paper. In a scheme which he ventured to suggest some years ago, he pointed out that less labour would be involved and greater accuracy would be attained by the adoption of lists, giving to the voter as many lists as there were candidates, so that he would simply have to put his cross on the list of the candidate he desired to vote for, which the enumerator would consign to its proper heap; and he ventured to think that such a plan would not entail much labour, and would be sufficiently accurate for practical purposes.

Mr. Jasper More thought, in regard to Mr. Hare's statement, that it would be as simple a matter to carry out what seemed at first sight to be a complicated piece of machinery as it was to carry out the postal arrangements of the country; that there was this difference between the two questions; whereas in the one case the postal system was conducted from day to day by officials trained in their several duties, the question of dealing with election matters would arise, as a rule, only once in the course of four or five years, and it was doubtful whether the same efficiency could be attained in the one case as in the other. The gentleman who had read the paper had touched upon many points connected with electioneering which were certainly most interesting, especially the question of corruption and instability resulting from narrow majorities. One of the most trying things was to find a constituency evenly balanced. It became absolutely certain that if one side were guilty of bribery and the other not, the bribing side was sure to get in; and, therefore, there was no such thing as a fair vote. That being the case, he thought, was a strong argument for supporting Mr. Hare's view being carried into effect. Further, the partial use of three-cornered constituencies necessitated some change. If you were the adopted candidate of the Liberal party in Herefordshire or Oxfordshire your return was inexpensive and safe. If you lived in any county adjoining you had to spend 5,000*l.* a week on solicitors and public houses, and had to lose the election if you would not sink to much lower expedients. Mr. Hare seemed to think the House of Commons was as anxious to make men virtuous and high-minded as he was, but unless Sir Henry James's Bill gave new courage, no member could hitherto vote against solicitors and public houses if he ever wanted to sit in the House again. He must confess, however, with regard to the present state of parliamentary elections, that there was an amount of ignorance among country constituencies, without any further reduction of the franchise, which people living in London or other large centres of thought and enterprise could hardly be aware of. By way of illustrating this fact, he might mention a circumstance that came within his own knowledge, and closely concerned himself. He was a candidate for a county constituency at the time when the disestablishment of the Irish Church was one of the questions before the country, and on that occasion 140 voters were taken in three parties to vote against him, because he had once voted for that measure. In all their houses there was a picture hung up representing Mr. Gladstone in the act of burning the Protestants, whilst he (the speaker) was represented as standing by calmly looking on. And on the polling day these people took up their place in the churchyard, where they stood for about three hours, and on one of his supporters going to ask them what they were waiting for, they replied they were waiting for the end of the election, believing that he should be returned, to see which way the spire of the parish church would fall, because they said they had been told that he was going to destroy the church, by which they understood their own parish church. With such material as that to deal with it would be rather a difficult matter to carry out a complicated system of election.

Mr. Rowland Hamilton thought the last speaker had given an illustration very much to the point, of the ignorance prevailing among some constituencies. It was a very old subject of complaint that the great difficulty in election matters was that very many voters really had no view of their own, or any access to information likely to bring home to them the merits of the choice which they had to make. Certainly this would not be remedied by throwing the whole country into one great constituency. He apprehended that if there had been an election some years ago contested on the one hand by the Prime Minister, and on the other by "the gentleman lately languishing at Dartmoor," the latter might have commanded the largest number of votes. Writers of eminence would always command the suffrages of many, but the question was whether they would not exercise more and better influence through the press, than they could do by attempting to engage in the rough practical work of legislation in the House of Commons. The history of the last two or three decades showed some striking instances of this. After all, we had to bear in mind that the House of Commons was and ought to be necessarily an extremely practical body, and therefore was not the best and most appropriate arena for the discussion of speculative politics. He considered that they could not dispense with the local element in representation, but notwithstanding all the bitter arguments that had been urged against the representation of minorities, he was in favour of those expedients by which substantial majorities in large constituencies should be able to secure the return of a member of their own choice. The minority of a large town was not represented efficiently or satisfactorily by the member for a small rural town, even though nominally on the same side of politics. It seemed more reasonable to expect that voters could be led to take a true interest in public affairs through the training afforded by the local election of their own representatives, than by treating the whole kingdom as one large constituency.

Mr. W. J. Bovill, Q.C., thought the Society was much indebted to Mr. Droop, and particularly for this, that he had shown that voting by majorities was the only real mode of voting. Notwithstanding the high authority of his friend Mr. Hare, he (the speaker) was of opinion that the whole question must finally resolve itself into one of majorities. If a man said he preferred first A, and next B, and then C, and so on, it simply was a question of majorities. It really appeared to him, that reviewing the whole thing, Mr. Droop conclusively proved that representation by majorities was the only substantial and practical representation that they could have in the election of members to the House of Commons.

Mr. Droop briefly replied to the various speakers. He pointed out that he had said in his paper that the methods for having minorities represented might well be limited to constituencies with five or seven representatives. He was not at all in favour of having one constituency for the whole kingdom; or to use words which would not clash with Mr. Hare's different use of the word "constituency," of having the votes of the whole kingdom distributed together and treated in a lump. A great deal had been said about the difficulties of applying the different methods of voting described, but this was to a great extent founded on misconceptions. As regards cumulative voting, he presumed it was settled by experience that individual electors had no real difficulty in voting according to that method. The only difficulty was the uncertainty how a party should vote to bring about the best result. In his friend Mr. Baily's plan, all the elector had to do was to vote as in cumulative voting, whilst the calculations for distributing the votes could be done in half-an-hour on a sheet of paper. In Mr. Hare's plan, all an elector had to do was to select a certain number out of the candidates and put them in order of preference, or else supposing that the names of all the proposed candidates were printed on the ballot papers, he would only have to mark them 1, 2, 3, 4, according to the order of his preference. It would be the same thing as marking the votes he gave to each candidate in cumulative voting. But the distribution of a large number of votes, according to Mr. Hare's plan, did seem to him to involve serious difficulties. For the individual elector, however, these new methods were much easier than majority voting. It was much easier for an ignorant elector to find out some one or two persons whom he could trust to represent him and judge and vote for him than to decide between two candidates, or three proposed by rival parties, candidates who were really not going to act according to their own opinions, but so as to be in harmony with great parties of the kingdom. It was very difficult indeed for an uneducated man to judge aright for which of these parties he should vote. It would be much better for him to choose a candidate whom he knew and trusted, and who would be free to act according to his individual opinions. In conclusion, he would just say, in reply to a question put to him with respect to the filling up of vacancies, that he had fully dealt with that subject in his paper.

The HISTORY *and* STATISTICS *of the* IRISH INCUMBERED ESTATES COURT, *with* SUGGESTIONS *for a* TRIBUNAL *with* SIMILAR JURISDICTION *in* ENGLAND. *By* R. DENNY URLIN, F.S.S., *Barrister-at-Law, formerly Examiner under the Incumbered and Landed Estates Acts.*

[Read before the Statistical Society, 17th May, 1881.]

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I.—*The State of Ireland in* 1849.

THE attention of thoughtful persons has for twelve months past been fixed on Ireland to a degree which is without example in our history, and which promises well for the future of that anxious and unsettled country. At no former time has the condition of her rural population been so carefully investigated by inquirers, official and private. In addition to the reports conveniently known by the names of the Chairmen of the Commissions, the Duke of Richmond, and Lord Bessborough, there are many other new and valuable sources of information. Of the volumes which have lately appeared, it will suffice to refer to the sketches of the Land System, by Professor A. Richey, Q.C., and Mr. C. Russell, M.P., Q.C.; to the graphic "Pictures from Ireland," by an able writer who shrouds his identity under the name of "Terence Magrath;" and lastly to the valuable letters of the special correspondent of the "Daily "News." It follows from these and other publications, that it is no longer necessary to preface an essay like the present with any description of the laws and usages which affect estates in Ireland, or with any inquiry into the causes which have led, at intervals, to a state of agricultural depression, involving political and social disturbance, and demanding as a sharp necessity parliamentary interference.

The condition of Ireland last year must have brought back vividly to the minds of Mr Forster, Mr. Tuke, and a very few others, their philanthropic labours of more than thirty years ago. But the consequences of the famine of 1846-47 were far more alarming than those of any recent failures of harvest. Ireland has during the long interval made rapid strides in material prosperity, and it is hard to realise the state of things existing after the great potato famine. It was not a question then of how to deal with tenants who refused to pay rents, which (in most cases) they were able to pay: it was a case of absolute inability; and the general non-payment of rents affected the landlord class to an extent of which more recent occurrences can give not so much as a slight idea. Of the genuine character of the distress there was not the least doubt, and it was useless for landowners to threaten with legal process tenants of whose utter destitution they were convinced. There was no more conclusive fact than the tremendous and unexampled strain placed upon the poor law system. It was no unusual thing for the poor rates in 1847-50, to amount to 8*s.*, 10*s.*, or even 12*s.* in the pound; while in a few of the most distressed districts they rose as high as 20*s.* in the pound.

The landlords were ill prepared for the disaster, being burdened with debt to an unprecedented extent. How far as a class they were blamable for this it is needless to inquire, and a variety of causes had long been operating to involve and incumber them. For the first fifteen years of this century, Irish agriculture had been in a flourishing state. Prices were inflated during the long period of European wars. Rents had risen, and expenditure had increased in proportion. Shortly after the peace of 1815 prices diminished, and the rents reserved by leases which had been made in prosperous years could no longer be paid in full. There could be no better proofs of the changed condition of things than those handsome castles and mansions, which were found to be disproportioned to the diminished incomes of their owners. Many of these stately edifices were left unfinished, and some of them have so remained to a recent, if not to the present, day. Their erection helped to aggravate the burden of debt on many a well known family.

It would be interesting to know what proportion of the surface of Ireland was prior to 1849 in settlement, but no statistics on this point are forthcoming. My experience, gained in the investigation of the titles in Ireland, leads me to the conclusion that five-sixths of the land was strictly settled. At the present time, the proportion would certainly be smaller, as many of the new purchasers were far less likely to "tie up" their lands, than were their predecessors.

The tendency of a strict settlement, it must be remembered, is to reduce the available income of each successive holder. On entering into possession of the family property he probably finds a certain amount of incumbrance existing. He has a jointure to pay, and perhaps also the sums charged for the benefit of the younger children of one or more of the former owners. On the coming of age of each tenant-in-tail of a considerable estate, it was usual in Ireland to make new legal arrangements; and the price paid by him for an income, during his father's life, was usually his own formal consent to the charging of some, or all, of his father's debts on the inheritance. When a generation passed away, there were, of course, fresh jointures and younger children's portions added to the old burdens; so that three or four times in a century there would be, in the natural course of events, definite and heavy additions to the burden of indebtedness. Jointures, no doubt, ceased to be payable in time, but as a rule the other family obligations were never wiped off. If a younger child required to realise, no longer contented to receive the interest on his charge, the usual course was to assign to a stranger; and so each item of debt was liable to be assigned, and subdivided also, until the "schedule of incum-"brances," which the court in the end drew up, was frequently a long and complicated document.

Year by year, therefore, the ordinary holder of a family estate found himself with an augmenting list of creditors, and a diminishing margin of income for his own use. It is no exaggeration to say that with the great famine this margin of income disappeared altogether, leaving very many of the landlords of Ireland with terribly diminished means. There were doubtless many who had been provident, and others who had renewed their fortunes in one way or another; but making all deductions, there remained nothing but a state of virtual bankruptcy for a number of landowners, large and small, hardly to be estimated under 3,000.

There were two tribunals which had jurisdiction. The Court of Exchequer in those days had the powers of a court of equity, and heard applications by creditors having claims on landed property; and a few suits had long been pending in the office of the Remembrancer, an officer (now extinct) analogous to a master, and whose powers of completing the business referred to him seem to have been of limited kind. By far the greater number of suits by creditors were however pending before the Court of Chancery, the inefficiency of whose process had even then become a bye-word. The excuse may be made that the rush of suitors immediately after the famine, and the resulting insolvency of so many landlords, caused a block, and that the machinery was inadequate. Yet in earlier years, when there was no extraordinary pressure, it had proved all but impossible to clear estates of incumbrances by means of the Court of Chancery. The procedure was so slow, and so costly, that the famous picture drawn by the hand of a novelist cannot be said to be overdrawn, and the suit of *Jarndyce v.*

Jarndyce had hundreds of exemplars in the annals of the Irish Chancery. These details came fully to light on the examination of the abstracts of title which were laid before the new Commission, and these documents contained narratives equal to anything in fiction.

As concrete examples are better than mere general description, I add some genuine cases, illustrative of the incumbered state of property, and the difficulty of gaining relief through the old tribunals. They are fair examples, taken from my notes of these titles :—

Illustrations of Incumbered Estates. From Notes taken in 1850 *and following Years.*

Re Cleary.—This estate was purchased in Chancery in 1817 by a person who used trust money for the purpose. In 1822 a bill filed against him. In 1841 a report finding all the facts. In 1842 final decree directing sale; the interest due at that date far exceeding the principal demand. The owner then settled his equity of redemption, this rendering supplementary bills and other proceedings necessary, and another final decree in 1850.

Re Rose.—Bill filed in 1801 by a mortgagee, who obtained a decree in 1805. Not being fully paid off, a receiver appointed in 1815. In 1834 a report finding what charges then existed, but they remained unpaid.

Re Raymond.—The earliest charges created by a deed of 1731.

Re Macartney.—In 1817 bill filed by a judgment creditor, and receiver appointed, who has since continued.

Re Fair.—Bill filed in 1831—suit proceeding since.

Re Head.—The incumbrances were annuities charged in 1761 and 1780.

Re Browne.—In 1813 former owner sold part of his property, indemnifying against charges by the rest. A judgment of 1809 being revived and process issued against the sold lands, the purchaser filed a bill to enforce his indemnity, and obtained a decree in 1834: in spite of which the estate put into strict settlement in 1839, occasioning bills of supplement and revivor; in 1850 final decree.

Re Hynes.—There were twelve suits pending by creditors to sell this property, when in 1839 order made staying all but Tilly's suit, and enabling the other plaintiffs to go in under that. 1841, report finding 31*l.* due to Tilly. Suit still proceeding.

Re Chichester.—A large annuity charged in 1817, which was never paid regularly, but was itself mortgaged by the annuitants several times over. 1836 suit commenced, "no one living can quite understand the complications of this "suit and of the incumbrances."

Re Hoare.—Bill filed in 1819, and sale under decree in 1827; but purchaser discharged because the representatives of a mortgagee of 1768 had not been made parties. This mortgage now the foundation of the petitioner's case.

Re Becher.—Several incumbrances dating from last century, the oldest being a mortgage of 1737.

Re Currie.—In 1802 Scott took a transfer of on old mortgage, and filed a bill in Exchequer (Equity), and this suit went on at intervals for forty-eight years, the latest decree being 2nd July, 1850.

Re Mason.—This property mortgaged in 1832 to Wright, who became bankrupt in 1840. Litigation going on ever since.

Re Shanahan.—A creditor obtained a decree for sale in 1796, and a receiver was appointed; receiver has continued ever since.

Illustrations of Incumbered Estates—Contd.

Re Mulloy.—Purchased in 1806 with money borrowed for the purpose, and which has never been repaid.

Re Beytagh and Concannon.—This was an exceptionally bad case. The estate was devised in 1806 to several persons, but it was already incumbered. 1810, bill filed by one of the owners against another; 1811, bill of revivor, also cross bill. 1812, answers filed to both bills; 1813, decree to account, and the case remained before the master until 1821, when he reported; 1832, death of plaintiff and bill of revivor. Death of master in the midst of his work, and new report necessary, to which the original plaintiff's son filed exceptions. 1833, court sent the report back to master for amendment; after which process defendant filed exceptions to it; but in 1836 the report was confirmed. 1838, bill of revivor and supplement filed, to which, in 1839 and 1840 twenty-one separate answers were filed by various parties interested. 1843, further report; 1844, order giving liberty to amend bill by adding fresh defendants; 1845, allocation report finding charges, and final decree for sale. In 1852 sale under Incumbered Estates Act after forty-two years of active (but abortive) inquiry in Chancery.

II.—*The Incumbered Estates Commission.*

In 1848, so many complaints were made of the difficulty, it might rather be said the impossibility, of prosecuting in the ordinary equity tribunals any suit for the sale and administration of real estate, and the payment of mortgagees and other incumbrancers, that the Government took the matter up. An Act was passed, 11 and 12 Vict., cap. 48, enabling persons to petition the Court of Chancery summarily, and enabling that court to give relief without some of the former incidents of procedure. This Act was inoperative, as very few petitions were presented, and in no case was further progress found to be within the reach of the suitor. The Government then came to the conclusion that there was an inherent want of power in the Court of Chancery to untie the tangled knots, and it was suggested that a new and exceptional tribunal, with very wide powers, should be created for this purpose. Whether the proposal originated with Lord Russell (then a leading member of the Government) or with his friend Sir R. Peel (hardly less influential though not in office) it matters little, for it was one which probably occurred to many minds, and one which was quickly accepted by all statesmen. The legal member of the Government who was responsible for the preparation of the scheme, was Sir J. (afterwards lord) Romilly, and the draftsman of a singularly well drawn Bill, for which "amendment Acts" were not required, was Mr. Coulson.

After slight opposition, and with the assent of all the more important members of the legislature, the Incumbered Estates Act, 12 and 13 Vict., cap. 77, became law on the 28th July, 1849. There was at once thrown on Lord Russell the important duty of selecting three Commissioners, a duty which he well performed, after consultation with Sir J. Romilly, and with Mr. J. H. Christie, a conveyancer of the highest eminence in Lincoln's Inn.

It was essential that the new court (endowed, said its critics, with most arbitrary and unheard of powers) should command the respect of all the other tribunals, and of the legal profession. On the other hand, it was not likely that leading advocates at the bar would accept appointments which were for a short term of years only, and carried with them very moderate salaries. The mode in which this difficulty was solved reflected credit on the Government of that day. The headship of the new court was offered to and accepted by the late Baron Richards, one of the judges of the Court of Exchequer, who had long experience in the administration both of law and equity, and who combined intimate knowledge of the old system, with much aptitude for the creation of a better system. He retained his seat in his old court (which was not overburdened with business) and by giving up circuit, was enabled to give a fair portion of his time, about three days in each week, to the work of the new tribunal. Without such aid as he afforded, whatever its merits, the new system might not have been able to hold its own against professional prejudice, and the unconcealed dislike of many landowners in and out of parliament. For although parliament had spoken clearly in passing the measure, there were difficulties to be encountered in the outset of the career of the new tribunal. The land owning class in Ireland, although reduced in wealth, had much influence left in other ways, and they rather resented the introduction of a machinery which was less a relief to them, than an assistance to their hungry creditors. A stringent bankruptcy Act is less welcome to those on whom it is to act, than to those who are eager on the realisation of their demands. Some leading lawyers looked askance. This feeling wore off in time, but it is certain that at the very outset the court was not popular, and Mr. Whiteside, the spokesman of the territorial class, rarely lost an opportunity of using his power of sarcastic criticism at the expense of the Incumbered Estates Commission. Although a few leading members of the bar disapproved of the court, the solicitors soon found that it was for their own purposes a satisfactory tribunal. Not only were their costs and charges rapidly paid, but they obtained with equal rapidity the settlement of outstanding, and sometimes very old accounts; ancient bills of costs against the heads of noble and gentle families; chancery items "long drawn "out," and representing the litigation of years, sometimes of generations. These varied demands, hopeless as many of them had once appeared, were now capable of realisation. In short, the process of the new court soon became popular with the solicitors.

Some words must be added as to the two judicial colleagues of

Baron Richards. One of them was Dr. (now the Right Hon.) M. Longfield, who possessed a minute knowledge of the laws of real property, and was Regius Professor of English and feudal law in the University of Dublin, a post which he holds to this day. The third commissioner was the late C. J. Hargreave, F.R.S., Q.C., and a bencher of the Inner Temple. He was appointed at a very early age, solely by reason of his singular merit, and the high opinion of him entertained by all the eminent lawyers with whom he had come in contact. The fact of his being sent over from England at first aroused some slight feeling amongst those with whom "Ireland for "the Irish" was the leading maxim; but his never-failing courtesy, and his rare genius for all legal problems, however difficult, soon caused a revulsion of feeling, and before no long time had elapsed he had attained both fame and popularity in the land of his adoption.*

The three commissioners of the new tribunal met in the autumn of 1849, and spent some time in drawing up their rules of procedure. Evidently this was a work of high importance; it was also one of difficulty, for little help was to be gained from any procedure then existing. The practice in chancery was unreformed, and in truth was to be deviated from as far as possible, being essentially tortuous and technical, costly and ineffective. Perhaps it is not too much to say that these commissioners were the first in modern times to strike out a simple and rational mode of procedure, at a date when all courts were overborne by the weight of cumbrous usages and rules of practice. Shortly afterwards common sense was allowed some entry into the superior courts, but at the period indicated the procedure (in equity especially) was of the most cumbrous and perplexing kind.

A large old-fashioned mansion in Henrietta Street, Dublin, was taken for the commissioners, the stable at its rear being enlarged into a court house, where the commissioners sat together two days weekly, and where the public sales of estates took place. On other days the commissioners sat apart, each having his own list of cases; and the appeal was to the three sitting together in full court. Many forms of appeal have since been tried, but I have never met with one so satisfactory as this, for the judge who heard the case in the first instance was always present, and there was no loss of time and temper, as often now at Westminster, through the absence of the very judge who alone knows all about the case. This court of appeal was in short so satisfactory that not frequently did any question go further, although the Act provided an appeal to the Judicial Committee of the Privy Council.

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* This eminent man, a tribute to whose memory ought to find a place in any sketch of the modern legal history of Ireland, was not to enjoy a long career. He became one of the judges of the reconstructed court in 1858, and died in 1866, a victim to intense study of mathematical problems. In his last illness he was attended by the late Dr. Stokes—leader of the medical profession in Ireland—who said of him, in my hearing, "He *was* the Incumbered Estates Court." Hargreave was a graduate and honour man of the University of London, and received the honorary degree of LL.D. from the University of Dublin.

When the court had got into working order the petitions came in rapidly. Each went before a single commissioner for a fiat, after which the administrative work arising out of it went on in his chambers* under the care of his own examiner, a highly important share of the work devolving always on the single Master of the Court. Each of these officers to a great extent combined the functions of a chief clerk in chancery with those of a conveyancing counsel to the court. Notices were given, publicly and otherwise, to all persons who had or were supposed to have any interest. The title was carefully examined. Schedules of tenancies and of the incumbrances on the property were drawn up and settled, and all questions (and they were many) arising out of these documents were decided by the commissioner, whose ruling was liable to be reheard by the full court. Some estates were sold under private proposals, but the rule was to sell by judicial auction in lots to the highest bidders; and these sales were held in a crowded court house, often amidst some excitement. The process had even its romantic side, for something of regret was felt by all when a fine old ancestral mansion was knocked down to some newly-enriched butter merchant of Cork, distiller of Dublin, or ship owner of Belfast. The efforts made to save their heritage by some incumbered owners were painful to witness; but on the whole the change of ownership was beneficial; and in travelling through some parts of Ireland in after years it might be observed that the best managed estates were usually those which had changed owners by means of the incumbered estates machinery.

The sale of the estate was far from being the end of the process. Minute inquiries were made as to the proper destination of every portion of the fund; and in the course of these inquiries serious disputes on matters both of fact and of law often arose, requiring argument and adjudication. The conveyances to the purchasers also required most elaborate care in their preparation, and the more so from the character of absolute finality which these documents possessed.

The quantity of work which flowed in upon the court, especially in the years 1851-54 was far in excess of all anticipations. No arrangements had been made in any proportion to this result, and the smallness of the administrative staff, and the modest scale of their remuneration during those years, would surprise those who have experience of the more magnanimous views entertained by the Treasury in regard to some departments of more modern growth.* One result of the temporary nature of the commission was noteworthy. Each one engaged, from the highest in rank to the lowest, worked with an amount of assiduity not commonly met with in the public service. Little account was made of the usual office hours, or even of customary periods of vacation. The only anxiety was to clear off the heavy work in the offices as rapidly and efficiently as possible. Can the explanation be that the employment being for a term of years only every person engaged (1) was in a highly efficient state, and (2) was "on his mettle," and anxious to show his fitness for further and perhaps higher employment in the service of the State? Such ideas are not ignored in military appointments, which are for a term of years only.

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* A very small share of the heavy work in chambers fell on the chief commissioner, five-sixths at least devolving on his two colleagues in equal shares.

It may be convenient here to note some points in which the system of the Incumbered Estates Court was, or might have been, improved as time went on.

The location of the court at a distance from the other courts and from the headquarters of the legal professions was found very inconvenient. It led, as might have been expected, to the formation of a small and exclusive bar, and the general bar were naturally discontented. This was remedied soon after the establishment of the court on a permanent basis, new buildings being erected within the enclosure known as "The Four Courts."

In the early years of the court the printing, surveying, and mapping was done indifferently, and so much inconvenience arose from careless work, that the printing of the most important documents issued by the court, viz., the conveyances, was committed to the government printer, while the Ordnance Survey Department was entrusted with the work connected with surveys and maps. This was a practical improvement, yet it gave dissatisfaction to some. I well remember that the late Professor Cairnes spoke of it to me as an injustice, that a monopoly of the printing for the court should be created. After some years of experience, Judge Hargreave declared that if the machinery had to be reconstructed, the only satisfactory plan would be to set up a new and special office, in which all notices, schedules, and other documents should be printed under the immediate control of the court.

The conveyance granted by the court remains unchanged in form and in legal effect, and one of its incidents is a finality which excludes the idea of amendment, even by the authority which granted it. A "vesting order" is superior to a conveyance as a piece of legal machinery, because less costly, and at the same time capable of amendment if an error be discovered in it; but this had not been invented in 1849. In any perfect system of land transfer, it is now well understood that the power of judicial rectification must be an essential feature.

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* In later years, as the business of the court has decreased, the salaries of the judges and some of the officers have been raised, as though to illustrate the saying of Sydney Smith, that in the public service the payment or reward is in inverse ratio to the work done.

It fortunately happened that owing to the extreme care taken by the Commissioners and their subordinates, few errors were committed. There were, however, a few, arising chiefly from the misdescription of parcels, or of existing leases or tenancies. The error, however, which led to most discussion, and to a compensation by parliament, was an order made to pay a sum of money to "The "administrator of A. G." Unfortunately there had been another A. G., whose administrator hearing of the order, drew the money (whether by fraud or mistake never clearly appeared) and became insolvent. The owner of the estate being compelled to pay the amount over again to the right claimant, brought his grievance before parliament, and obtained a special enactment compensating him in full. There never was a compensation fund (as in the Australian Colonies), and Judge Hargreave held that a compensation fund in Ireland would prove an evil, by tending to encourage carelessness as well as exaggerated or fictitious claims. The special powers of the court were often so exercised as to keep the estate in the hands of its old owners. Part only was sold, or a new and comprehensive mortgage at 4 or 4¼ per cent. was negotiated; and thereby the court was enabled to clear off the multitude of old charges, which usually bore 5 per cent. interest, and judgments which bore 6 per cent., and re-grant the whole or the best part of the estate to the old owner (or his trustees)—if incumbered, then only with one charge at a low rate of interest. There were many instances of a transaction so advantageous to all persons interested.

Many complaints were made that in the early years of the court estates were sacrificed, by being sold at low prices. The answer was that most of them were in bad order, and over-tenanted; that the value of land, as of any other commodity, was what it would fetch at public competition after due publicity given to the sale; that the legislature had intended that the estates should be speedily sold, even in a depressed market. In some cases the owners were able to negotiate a postponement to better times, in others immediate sale was inevitable, even at from fifteen to eighteen years' purchase, not an unusual price realised under the judicial hammer in the period 1850-54. Some of the purchasers improved their new acquisitions, and then resold at a profit of from 10 to 40 per cent. in after years, and the knowledge of this fact was further bitterness to the sold-out owners. In course of time the value slowly rose to about twenty-two years' purchase, which may be considered as the average normal value of eligible land in Ireland.

After the Land Act of 1870 the value again fell somewhat, and last year the depreciation had become marked and general. Yet the landlords have been found able to bear the recent strain, and very few, if any, estates have lately been submitted to a forced sale. This is a clear proof of general improvement in the resources of Ireland.

The Incumbered Estates Commission, 1849-58, more than fulfilled the expectations of those who designed it. It cleared a portion of the land of Ireland, estimated at one-tenth of the entire, from mortgages and other charges. It transferred so much of the island into the hands of new and solvent proprietors. The transfer from a needy to a solvent class has been followed by development and improvement of various kinds. Some of the new proprietors may have proved themselves grasping and rent-raising speculators, but this is not the character of the great majority of them: and only such as derive their opinions solely from newspapers will brand an entire class with the odium which has been earned by a small minority. So far from these changes of ownership having tended to bring about the present unsettled and discontented state of Ireland, I think that they have tended to defer, and to mitigate, that intermittent fever which now and again comes over Ireland, and from an attack of which she, I would fain hope, will soon recover. If the country had been in the hands of chancery receivers and of deeply mortgaged proprietors for the last few years, I doubt not that the condition of things would be more hopeless and helpless than it is at present.

The Incumbered Estates Commission sat for nine years, from October, 1849, to August, 1858, during which period 4,413 petitions were filed. The number includes supplemental petitions, and some for partition of lands. The number of absolute orders for sale of estates was 3,547. One-third of the estates had been for a longer or shorter period the subjects of suits in chancery before coming into the Incumbered Estates Court.

The estates were sold in 11,024 lots, and where a purchaser took several lots he often had them included in the same conveyance. The number of conveyances granted by the court of the purchased lands was 8,364.

From the addresses given by the purchasers, it appeared that only 324 were from England, Scotland, or the colonies. These purchasers paid in 3,160,224*l*. The others gave Irish addresses.

The gross proceeds of the sales stood at 23,161,093*l*., including various sums of interest charged on purchase money paid in after the due period allowed for payment had been exceeded.

Of this amount 21,934,696*l.* was distributed by the Commissioners during the above mentioned period. The balance (partly invested in stock) being transferred to the credit of the new court.

Annual Account of Funds, Accountants' Department of the Incumbered Estates Commission.

Year ending 31st August.	Absolute Credits given to Creditors who became Purchasers.			Cash Receipts.		
	£	*s.*	*d.*	£	*s.*	*d.*
1850	—			483,791	4	3
'51	22,450	2	7	2,061,430	6	4
'52	163,314	14	9	2,631,147	13	2
'53	745,360	5	8	3,032,221	2	3
'54	549,698	2	8	2,454,840	14	2
'55	495,198	2	4	2,161,447	7	11
'56	675,696	16	7	1,995,105	5	6
'57	253,221	18	10	1,938,347	9	7
'58	562,114	3	–	2,393,228	11	5

For many years the expense of the court was defrayed by parliamentary votes. The public were however recouped to a great extent as follows:—For nine years the sales averaged 2 millions yearly, and the stamp duty paid by the purchasers on their deeds would therefore be 10,000*l.* per annum. It was in 1858 provided by statute that an *ad valorem* duty should be levied on all the property passing through the court. This is still levied, and it does not produce, one year with another, so much as one-fourth of the annual expense of the court, including judges' salaries, which are now charged on the consolidated fund. The diminished business is shown by the amount of this duty-fund:—

	£
Year ending March, 1864	6,446
" '70	4,296
Treasury estimate for 1881-82	4,000

III.—*Developments of the Incumbered Estates Commission.*

After the commission had been hard at work for four years, an inquiry was made and an extension was resolved on; but at first this was only carried out by Acts continuing the court from year to year. A project then came forward in the shape of a Bill for improving the Irish Court of Chancery by adding a judge, and giving power of selling estates with that guaranteed or indefeasible title which has always been rightly regarded as the most valuable feature of the system. Much doubt was at once expressed as to the wisdom of getting rid of a thoroughly effective court, and striving to supply its place by means of reforms in chancery. The Bill went before a select committee of the House of Commons in 1856; and although not condemned in terms by the report of that committee, it was virtually thrust on one side and forgotten. Baron Richards having resigned his chair, Mr. Martley, Q.C., succeeded him as chief of the court, this appointment convincing those who could discover its significance, that the court was to be made permanent. In short, in the year 1857 all who understood the question had come to the conclusion that the court must be made permanent, with enlarged powers. Even Mr. (afterwards lord chief justice) Whiteside, who had been the severest critic of the court, now acknowledged its utility; and in 1858 it became his duty as a law officer of the crown to take charge of the measure by which the court was perpetuated.

This became law on the 2nd August, 1858 [21 and 22 Vict., cap. 72], and it is enough to say that it turned the commission into a new equity court of three judges, with all the powers of the old commissioners, and some added powers. Estates of all kinds might now be sold, although unincumbered, and the court was empowered to grant "declarations of title" to owners who wished to have a perfect title, but did not wish to sell. Powers were also given to carry out contracts, and also to enforce specific performance of contracts, and subsequently power was given to sanction leases of settled estates.

Under the minor branches of jurisdiction, not much has been done, though it was most convenient that these powers should be conferred. I do not propose to enter minutely into the history of the court under its new designation. There have been changes in the *personnel*, and also in some details of procedure, which need not here be glanced at. So far as disincumbering Ireland was concerned, the heavy part of the work appears to have been got through before 1858, as fewer estates were after that date brought into the court, and those which came in were not on an average nearly so burdened with debt, as in the earlier period estates were found to be.

The following shows the state of the business coming before the court under its designation of Landed Estates Court, and more recently Court of the Land Judges:—

Petitions for Sale presented in the Year	For Sale of Incumbered Estates.	For Sale of Estates not Incumbered.
1864	429	43
'68	343	35
'72	291	33
'75	329	37
'79	312	27

On an average the applications for declarations of title are about 10 in each year, for partitions or exchanges about 4 in each year, for specific performance of contracts 4, for apportionment of rent 1. The appointment and oversight of receivers was added to the other duties of the land judges by the Act of 1877, and in 1879 481 receivers' accounts were passed, and 1,029 receiver summonses issued. The costs, taxed and certified, of proceedings before the land judges amounted in 1879 to 29,514*l.* which is about the average amount.

The value and net rental of the estates sold in some recent years appears as follows:—

	Amount of Purchase Money.	Net Rental, or Annual Value of the Estates.
	£	£
1872	1,451,688	76,289
'75	1,209,488	63,292
'79	799,008	45,015

In the year 1864 much interest was aroused by news of the success of the system of registering title in some of our colonies.* A measure partly founded on the Australian system, though with some important deviations and shortcomings, had been passed for England in 1862; and a very limited and tentative measure was all that could be gained (in the face of much opposition) for Ireland in 1865 [28 and 29 Vict., cap. 88]. When this was just beginning to work, Judge Hargreave, who was interested in the experiment, and had agreed to superintend it, died rather suddenly, and his premature death, more than any other single cause, contributed to the partial failure of a well intended, but incomplete scheme. Evidently such an Act ought to have applied to every new title granted by the court; but an option being allowed, the Act has, through professional prejudices, been excluded so largely that less than 700 titles are now on the new register, and the number is not likely to increase until there shall be a change in the law. Small as the amount of property is, there is quite enough to show that the system is safe, economical, and expeditious in working.

Up to the year 1880, only 679 properties passing by conveyance from the court have come upon this record, the estimated value being 2,256,354*l.*, and the amount of charges created on such properties being 385,103*l.*

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* In New Zealand alone 10,850 transfers and other dealings were registered in the year 1876, *vide Journal of the Statistical Society*, March, 1877, p. 107. These transactions are stated to have been carried out with a celerity, economy, and security which show "that the colonists are at all events, in this respect, "infinitely better off than their lawyer-ridden countrymen at home."

Taking the entire amount of property which has passed through the court from 1849 to this time at 52 millions, the title of only one twenty-fifth part therefore appears to have been registered, so as to preserve its guaranteed character. As to the remaining twenty-four twenty-fifths, the titles are year by year losing the quality they at the outset possessed, and relapsing into more or less of confusion. After an interval of (say) forty years, a parliamentary title is no better than any other, and all these titles in Ireland are gradually losing their value. A grand opportunity has thus been lost of preserving the once perfect and unimpeachable quality of an enormous mass of titles.

The cost to suitors in the early days of the Incumbered Estates Commission was very moderate indeed. Formal applications in court and formal orders on matters of detail were discouraged, administrative directions being given informally and inexpensively in chamber. A parliamentary return gave, many years since, the taxed costs in each case of the sale of a considerable number of estates. Were an accurate return of similar character obtained now, my impression is that the costs of proceedings would be found to have increased by nearly 50 per cent. The average costs are now stated at nearly 200*l.* for each case going through the court; but this is no clue to the cost of proceeding, seeing that many of the "estates" consist of a single leasehold house, or a little farm of two or three fields, while other estates are extensive and the necessary cost is considerable.

In 1849 it does not seem to have occurred to the legislature that the occupying tenants had any claim to pre-emption of their farms, nor was any such claim put forward even by the professed advocates of the farming class until many years later. By the light of recent events it is easy to criticise this omission, and to assert that if special facilities had been given for farm purchase many thousands of tenants in Ireland would now have become contented and thriving small proprietors. The usage of the court has been to prepare the estates for sale rather with a view to attract adjoining proprietors and capitalists; and the idea of tempting the farmer to buy the freehold of his own farm, whatever may be its merit, is altogether one of recent growth. I first heard the proposal made in Dublin in November, 1866, in the course of a long conversation, in which the Right Hon. J. Bright took a leading part. Three years later he procured the insertion of some clauses (now known by his name) in the Land Act of 1870, with this special object in view. Of the Bright clauses of that Act, as is well known, little use has been made. The reason of this failure has been carefully inquired into by a parliamentary committee, of which Mr. G. Shaw Lefevre, M.P. (lately President of this Society) was the chairman; and his draft report (lately reprinted in a volume of essays) is a valuable contribution to the not abundant literature of this question.

The sales to tenants under the Bright clauses of the Land Act of 1870, in which charging orders to the Board of Works (for advances of public money in aid of those purchases) were made, have lately been as follows:—

	Purchases.	Amount.
		£
In 1876	71	60,919
„ '77	84	82,660
„ '78	129	117,421
„ '79	42	43,250

My own opinion is that the Bright clauses failed because of (1st) the apathy of the officials charged with the working out of the scheme, and (2nd) because of the want of a sufficiently simple and effective procedure. The average tenant farmer in Ireland is strongly attached to his holding, and if facilities are given him he will manage to purchase it at a fair price. He is however remarkably fond of his money, and unwilling to part with it; and if told that the cost of turning him into a peasant proprietor will amount to 60*l.* or 80*l.*—perhaps two or three times the rent of his holding—he will decline the scheme and abide his chances. Small transactions of this kind ought to be committed to the county court judge; and with regard to larger ones, the procedure of the court of the land judges might easily be simplified and cheapened.

I am however convinced that to turn the Irish farmer into a small proprietor, and then to leave his newly acquired title to drift into the ordinary kind of entanglement, is to confer on him a very doubtful benefit. If he is to be really placed in a better position, his title must be inscribed on a public register, and thereby kept from falling into doubt, complication, or obscurity. But so long as parliament recognises the vested right of any one class of men to keep the rest of the community in perpetual difficulty—in other words, so long as there is not a public and a compulsory register of titles for these kingdoms, it is a questionable boon to him and his successors to turn any small tenant into a freehold proprietor.

The Judicature Act for Ireland passed in 1877, part of its policy being to "level up," so that courts hitherto distinct might become branches of one high court. The judges of the Landed Estates Court were now raised to an equality with their judicial brethren, and their court as a distinct tribunal ceased to exist. All its powers, as also its procedure, are preserved untouched.

It may fairly be questioned whether these recent changes were made in the interests of the public; and there is reason to fear that under other names some incidents and shortcomings of the old chancery system of Ireland may be revived. There are cycles in judicial history, and we have briefly followed out the narrative of a remarkable court from its rise in 1849, down to its practical absorption into chancery. Were it existing in all its old vigour and efficiency, can it be thought that Mr. Gladstone would now deem it necessary to invent a new land commission?

IV.—*Proposals for a Similar Tribunal in England.*

When we proceed to consider the expediency of founding here a tribunal after the model of the Incumbered Estates Commission, we are met with the difficulty that no means exist of discovering how many estates are incumbered, or what is the amount of indebtedness and the margin of solvency. Still the fact is well known that in every county there are many properties which are heavily charged, and which through the recent falling off of rents and giving up of farms are in a much embarrassed and precarious state. Take an incumbered landowner with four or five thousand a year of nominal rental. In good times he can pay interest and all other outgoings, and subsist on a margin of two or three thousand a year. In bad times his margin so necessary to him* has a tendency to disappear. What is wanted is a machinery by means of which he may without undue delay or expense sell his outlying farms, and pay off all the incumbrances—preserving for himself and his successors an estate smaller indeed but unincumbered. This can only be done now at very great cost. For example, if he puts up fifty lots of land at auction, there are fifty abstracts of title to be furnished to the purchasers. Fifty acute lawyers are immediately set to work to pick holes in his title, and to their fifty sets of requisitions, he is obliged to furnish fifty sets of replies, and so throughout.

If there were a land commission of the kind now proposed, the proprietor would furnish but one abstract; and the commissioners would, on examining it, raise no quibbles or difficulties of the merely formal kind. A title bad or defective in substance they of course would not accept, but such a title is the exception, not the rule. On being satisfied, they would sell in as many lots as might be desirable, and the only document supplied to each of the purchasers would be a certificate or order fully describing the lot, and by virtue of the statute vesting it indefeasibly in its new owner. This certificate (or a duplicate of it) should at once be entered in a new folio of a ledger kept in a public record office, and all subsequent dealings should be noted up on the same folio. Short forms of transfer and of charge should be provided, and the record itself should be under the control of the land commission.

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* Voltaire said, "le superflu—chose très necessaire."

So far is this from being a new project, that it accords almost exactly with the plan brought before the House of Commons in 1859 in a well known speech by Sir H. (now the Earl) Cairns, when he laid on the table two Bills—the best of their kind that have ever been prepared—one for establishing a land tribunal, and the second for establishing in connection with it a register of parliamentary or guaranteed titles.

From the remarkable success in working of the Irish court in its early stages, I should recommend it as the model to be followed in several particulars, advantage being taken of several points in which experience has been subsequently gained and extensions of power accorded. The head of the court should certainly be one of the superior judges, so that when the court sat for hearing arguments on disputed questions it should command the entire respect of the public. The chief commissioner need not however take any share in the administrative or conveyancing work done in chambers, all of which might devolve on his less dignified colleagues. And here it may be noted that the chief part of the work of such a court, whatever view the Treasury may have been induced to take on this point, is rather administrative than judicial. It is more administrative than the business of a county court judge, and not more judicial than that of an acting judge in bankruptcy—and here is the closest analogy.

In the working of a land tribunal in England, some difficulty would be caused by the absence of that perfect series of ordnance maps which in Ireland was of enormous use to the commission. The tithe maps are, however, fairly reliable, and they could be used until the ordnance survey is complete. The mapping and printing should, for reasons of economy, speed, and accuracy, be done, if not by a public department, yet under the immediate order of the court, and not by private and irresponsible hands. The proposed court might be established as an experiment for a term of five years, at the end of which period it would be much more easy than it is now to decide whether it should exist separately, or whether two other public departments—the tithe and copyhold commission and the land registry—should be merged into it. Nothing but experiment can safely determine how a given scheme will work, and what extension or modification will be called for in the course of a few years.

In conclusion I wish to point to the fact that in no other way is it likely that any effective onward steps can be taken in our time as regards the registration of title and the simplification of land transfer. This appears to me of vastly more importance than the abolition of entail, and some other projects which non-professional persons are fond of lauding, as though such were likely to clear away all obstacles in the way of sellers and purchasers of land. Lawyers know that if you have the names of trustees (with power of sale) inscribed on a public register, it really matters nothing that the property is entailed or in settlement. It is ludicrous that the vast property in railways and in shipping should be capable of easy sale and transfer, while scarcely a yard of land can be bought or sold without long and costly inquiries—without a wholly disproportionate and absurd amount of correspondence and conveyancing.

To strike effectively at this great evil is one of the objects in view when I advise a recurrence to safe and successful example, and recommend the study of the system under which three judicial conveyancers and auctioneers (for such they really were) sitting in Dublin, sold in eight years real property of the value of 23 millions, distributing the proceeds expeditiously and accurately. Were such a tribunal instituted here, owners who wished to sell all or any part of their landed property would for their own sakes at once resort to it. Purchasers contrasting this judicial process with the usual auction room and its incidents, would appreciate the difference, and not only prefer the new system but be very likely to give higher prices. Thus a large portion of the landed sales would flow in this channel, and the new titles being inscribed on a register, the solution of the difficulty of land transfer and simplification of title would be a matter only of time. It might be very long before all the land of England came upon the register, but what ought to be aimed at is not so much utopian perfection as a practical mode of relief to all who will resort to it. The land tribunal and its auxiliary register would, although working but gradually, at least afford speedy and sure relief to all who might ask for it. Can any one venture to deny that there are at this moment thousands who would sell land if facilities and a good market were afforded them, or to deny that thousands are ready to buy land in small quantities if they could do so readily, and with a guaranteed title? What is really required is to sweep away the purely artificial obstacles which now keep these two classes of persons apart. What was done in Ireland thirty years since can surely be done in England now. There must be statesmen yet amongst us equal to the task of brushing aside hindrances really slight, because based only on the interests of some and the prejudices of others, and erecting on assured foundation lines, an open and untrammelled market for the sellers and the buyers of land in England.

Ontario

Discussion *on* Mr. Urlin's Paper.

Sir Robert R. Torrens, K.C.M.G., said that he had not any expectation when he came to the meeting of being called upon to offer any remarks, but as the subject might be of some interest, he would say a few words with respect to the colonies. The colony of South Australia was founded originally for the purpose of establishing a yeoman proprietary in that country, but after the lapse of twenty years, or even less, it was found that the small holdings were rapidly passing out of the hands of the agriculturist into the hands of the village attorneys, owing to the enormous costs of the system of conveyancing which the colonists took out with them as part of the law of England. This became a crying evil, and having been in the custom service in his early days, and thus become acquainted with the system of conducting conveyancing of property in shipping, he afterwards acquired some knowledge of conveyancing of estates and interests in land, and failing to perceive any substantial difficulty in applying to the latter the process which had proved so successful when applied to dealings with property in shipping, he urged the Attorney-General, who was an intimate friend of his own, to take the scheme in hand; but that gentleman said: "That would be entirely opposed to the legal profession here. If you carried it out, it would be a magnificent thing, but it is impossible for me to undertake it." He was then thrown on his own resources, and following the lines laid down in the English Shipping Act, succeeded in applying conveyancing by registration of title to the lands of that colony. Many difficulties which they had to encounter in introducing that system did not exist in Ireland at all, and only in a slight degree in this country. For example, a very defective survey and the absence of old hedgerows, and in many cases of actual occupation, rendered accurate description of parcels and the locating of the land extremely difficult. In England nothing of the kind would occur, and in Ireland they had a splendid ordnance survey, and the country divided into townlands, which as a rule corresponded to the boundary of farms, affording the utmost facility for conducting transfers. He confessed that he did not at all contemplate at first the extraordinary beneficial results which would follow from the substitution of registration of title for the system of conveyancing peculiar to this country. To illustrate it, he would just refer to the case of mortgage. Here when it is only intended to hypothecate or charge the land with a sum of money, we resort to the strange and factitious device of conveying the legal estate to the mortgagee by one deed, and reconveying it by another deed when the money is repaid. In the colonies, under his system, the object is attained by a simple and direct procedure charging the land, and a simple receipt for the mortgage money enclosed on the certificate of title of the mortgage and recorded in the register of titles. The procedure may be completed in less than a quarter of an hour, and the cost is but 10*s.* for a mortgage, and 4*s.* for its discharge. No professional assistance is necessary. Under the English method of conducting suit transactions, the mortgagee gets possession of the deeds, and as the conveyancers express it, "sits on them." The consequence is that the mortgagee, in the event of his requiring a further loan, is placed in a most injurious position, for the second mortgagee would not only be hampered in his remedies in case of default, but would also be liable to be ousted of his security by a subsequent mortgage attached to the first. The result is, that however ample the security may be in point of value, second mortgages are, as a rule, interdicted in settlements, shunned by prudent men, and only accepted at exorbitant rates. The value of land in the colonies, regarded as a basis of credit, has been greatly increased by its emancipation from those antiquated and factitious proceedings. Under the existing system there is an inevitable tendency to create what are called "blistered titles," that is titles the evidence of which is imperfect in some technical matters as contrasted with perfect marketable titles. Under registration of titles no such tendency exists, and the conversion of blistered titles into indefeasible titles has restored to their natural value many estates depreciated by that cause. These are incidents, the great value of which was not foreseen but developed in the practical working of his system. Time would not admit of more than a brief outline of that system as explained in a Bill drafted by him, applicable to Ireland, which was read a first time in the Commons in 1863, introduced by the Right Honourable W. Monsell, now Lord Emly, and backed by the Right Honourable Henry Herbert and Sir Colman O'Loghlen. The register is compiled by binding together the duplicates of all certificates of title issued by the "Estates Court," representing the freehold, together with the duplicates of all certificates issued upon the transfer or transmission of a freehold. Each of these duplicate certificates constitutes a distinct folium, two or more pages being annexed for registering the memorials of all future dealings with any estate or interest in that particular parcel of land. When the parcels are broken a fresh certificate is issued, and a fresh folium opened for the transferee. On such occasions the portion of land transferred is notified by memorial on the certificate of the transferor, or if he prefers it, or it be deemed convenient, that certificate may be annulled and a fresh certificate issued for the residue of the land; and upon it are carried forward the memorials of all lesser estates or interests affecting that residue which remain unextinguished at the date of registration. Entry of memorial of any dealing on the appropriate folium constitutes registration. Recorded estates are held subject to such estates or interests as are notified on the foliums of the register constituted by the certificate of rolls, but free from all other liens, estates, or interests whatsoever. Certificates of title for whatever estates or interests in registered land are issued in duplicate—one retained in the registry office, the other held by the registered proprietor. The latter must on the occasion of any dealing be given up to the registrar, in order that endorsement may be made thereon notifying such dealing, corresponding with the memorial thereof in the register. That system had been found adequate for every requirement, tested by over twenty years' experience. The cost of conveyancing had been reduced from pounds to shillings, and the time from months to days. The best evidence of its success and efficacy was afforded by the fact that all the other colonies in the Australian group, perceiving the success which attended it in South Australia, had adopted it; and he had recently received letters from British Columbia and Fiji congratulating him on the great success that had attended its adoption there. The failure of the Acts known as Lord Westbury's and Lord Cairns's should not be ascribed to any impossibility or even serious difficulty in applying the principle of "registration of title" to this country, for as a matter of fact that principle was never put on its trial by those Acts; that of Lord Westbury in particular was a hybrid measure, an attempt to bring into operation two antagonistic principles, and rightly described by Sir Henry Thring (member of the royal commission of 1868) to be "entirely unworkable, and to possess all the disadvantages without any of the advantages of the numerous schemes formerly proposed for the registration of deeds." Moreover, the official mechanism by which it was proposed to apply that system was pronounced by Mr. Spencer Follett to be unworkable on such a scale as would render it of public advantage. He (Sir R. Torrens) saw no difficulty whatever in applying his mechanism for registration of title to all the lands in England, though, as we had one-sixth of all the lands in Ireland cleared of all blots and doubts by being passed through the Estates Court, and over 600 titles annually similarly treated by the Copyhold Commission in this country, and as these titles (for the purposes of registration) stood on all fours with the land grants issued by the crown in the Australian colonies, he would suggest that registration of titles should in the first instance be made compulsory as regards these.

Mr. John Glover thought, after the interesting address given by Sir R. R. Torrens upon the working of the system of registering titles in the colonies with respect to land, that it might not be uninteresting to the Society to have a little information with regard to the operation of the system of registering titles in relation to another description of property in this country. He had been connected with shipping property for more than thirty years as buyer, seller, and as lender on mortgages, and in the course of that long period—although he could not say he never had a difficulty, because in dealings of every kind there must be difficulties experienced—he could say this, that with reference to the registration of title in shipping property he never had an error. And they must bear in mind that a ship differed from land in this respect, it was moveable property—here to-day and elsewhere to-morrow: it might be altered in form; it might be cut in two and have 20, 30, 40 feet built in the middle of it; it might be raised 8, 10, or 12 feet in height, and otherwise altered in shape; whereas property in land and houses was fixed; was always in the same place. Notwithstanding these distinctions in the nature of the property, he made the emphatic averment that there was no difficulty about the registration of title. It was high time that the word "impossible" in respect to the registration of titles to real estates should be dismissed from their vocabulary, as it had already been regarding so many other things. If the owner of a ship wanted to borrow money, and some one was willing to lend, he could go to the Custom House, and in less time than he had taken to address the Society, he could fill up a mortgage document prescribed by Act of Parliament, which cost nothing, which recited in simple language, "I, A. B., acknowledge that I have received from C. D., the sum of , for which I promise to give per cent. interest, and hereby transfer as security so many shares in such and such a ship." In that way ships worth from 5,000*l.* to 100,000*l.* could be sold, mortgaged, or divided into any number of shares not exceeding sixty-four, without the intervention of a lawyer, with great facility and at no cost; and with all his experience in such transactions he never knew a mistake. In view of this principle applied to shipping, and to debentures and shares of public companies, he asked whether it was creditable to their sensible, practical English character, that they should allow themselves to be held to the absurdity of requiring such elaborate investigations of title on every transfer, and legal charges to the extent of 3 per cent. to 6 per cent. of the value. Such a system lessened the value, owing to the impediments it offered to the buying and selling of property in land. He took the liberty, in conclusion, of emphasising the recommendation of the writer of the paper, that one of the first steps to be taken in this country to the practical solution of the land question was compulsory registration. As shipowners they had no option. He could not hold a British ship without having a compulsory registered title, and he should like to know what right any British subject had to say to the Government, "You may enforce your regulations on one description of property but not upon another." All Her Majesty's subjects should consent to submit to the investigation of the titles to their property of whatever sort, whether it was for buying, selling, taxation, or anything else.

Mr. Walford thought there were many reasons why the system which obtained in the colonies with regard to land transactions could not be applied in this country. One reason was that in the colonies for the most part the Government gave a title *de novo*, and the title being derived from the Government, there really was no difficulty whatever in getting a clear start from that point. The colonists had not had time, if they had desired, to do what had been done in this country, and the law of primogeniture and entail did not prevail there. The charges in the way of family settlements and jointures that had grown up under the English system had never been possible of creation in the colonies. Here an estate might be reserved for children yet unborn, and why not? How were they to deal with estates in this country subject to such jointures and settlements for generation to generation—that was the question? And when on a death the title had to be investigated with a view to make it indefeasible, it was absolutely necessary in the interests of the purchaser that all questions affecting the title within the knowledge of the law of real property, should be investigated before this title could be given. And if this investigation had to take place a great expenditure in the process of clearing and establishing these facts must be incurred. The knowledge of an evil, and the wishing it to be removed, did not necessarily suggest the practical way of doing this. How could the difficulty be removed? Who was to bear the burden of the cost of those investigations, in the event of their being made compulsory? Was it to be said that he, as the owner of an estate, must submit his title to investigation, and if perchance a conveyancer in the past had overlooked anything in that title, he might, by the process, be thrown out of the ownership of that estate? Was he to run the risk of this? Most certainly not. He who owned a freehold estate should be entitled to dispose of that property, or incumber it in any way he chose within the scope of the law, without any extraneous interference, or involuntarily submitting his title to such an investigation as that proposed. It would never do in an old country like this to revolutionise estates by a compulsory registration of titles, although there could be no possible objection to the adoption of machinery to voluntary processes of this sort, so that any owner who thought his estate would be improved by the process might apply for a clean title.

Mr. J. Macdonell, replying to the previous speaker's remarks with regard to the Incumbered Estates Act in Ireland, reminded the Society that several years after that Act had been in operation a select committee, composed of some eminent statesmen, sat to investigate the working of the Act, and notwithstanding the immense transactions, covering about a tenth of the land in Ireland, the commissioners found as a matter of fact that there was not a single instance of a mistake having been committed. He would also ask the meeting whether, looking to the present state of the law and the practice of conveyancing, there would not be many great and substantial advantages supposing a system of registration were established. Let him give an illustration of possible benefit. Take an estate just sold, the title to which might be exceedingly complicated: it was investigated, and the investigation took, let it be assumed, a considerable space of time, as well as a considerable amount of expense; if that estate were sold a fortnight afterwards, the whole process might have to be gone through again. Such things happened in many instances; and surely if they had established in this country a system of registration of title—a compulsory system—the second purchaser would see clearly placed on the register the results of the previous investigation, and the scandal of a second examination of title would be avoided. Coming to the paper itself, there was one portion of it that struck him as particularly valuable at the present time, and that was the part which urged the immense advantage of establishing a compulsory registration of title in aid of peasant proprietors. A short time ago he spoke to an eminent authority on the Irish land question on that subject, and he said in reference to the Irish Land Bill that it was perfectly hopeless to expect that a system of peasant proprietors would be successful, or that they could long continue prosperous, unless a compulsory system of registration of title were established within a short space of time. Those new proprietors would borrow—they would be compelled to do so—and they would mortgage their holdings. They would sell them; and we should see titles clear at the beginning, become exceedingly complicated in a brief period. Therefore it struck him it was of great importance to do what the writer of this paper had proposed. But the registration must be made. If they referred to the paper, they would find that the business in regard to the sale of incumbered estates had fallen between 1864 and 1879 from 429 to 312 sales; and that as regards the sale of unincumbered estates, which was a more important business, the number of applications to the court had diminished in the same period from 43 to 27. There were other proofs of the same falling off in the business where it was stated that the duty fund fell from the year 1864, when it was 6.446*l.*, to 4,000*l.*, the treasury estimate for 1881-82; and he ventured to say that these figures ought to make this country pause before it accepted the Incumbered Estates Court of Ireland as a model. The system in that country was defective, and in his opinion there were far simpler and far more effectual models than it. He could not but remember that Lord O'Hagan stated it as his opinion, that the Incumbered Estates Act, so far as Ireland was concerned, must continue to give less and less valuable results, and he was convinced that it was absolutely essential to employ a procedure in many respects simpler than that which existed.

Mr. S. BOURNE said that he could bear testimony to the simplicity with which the process of the sale and registration and transfer of property in ships could be effected, and there could, he said, be no question at all about the security which accompanied all transactions of that description. In answer to Mr. Walford's objection with regard to landed property, he thought it might be fairly asked why was it that one description of property should be subjected to so many charges which were not found necessary in other descriptions of property? If it were right and proper that property in land should be so charged, he could see no reason why shipping should not be subject to as many complications and difficulties; more particularly so when, as had been pointed out by Mr. Glover, in the one case you had a moveable and changeable description of property, needing greater security for identification and registration than land which, now that they had got a good survey all over the country, ought to give rise to no difficulty in this respect whatever. If the present charges had grown up under the existing system, it might not be expedient to require every owner of property to undergo a system of compulsory registration; but there seemed to be no reason why the owner of that property, when he chose to make it the subject of sale, should not be required to submit the title which he held to the investigation, not simply of the purchaser's lawyer, but to some recognised authority connected with the courts of justice which might form the basis of any subsequent contracts. In that way they would gradually limit present difficulties, and a system would grow up by which sales and transfers might be readily effected, getting rid of the complications which now really lessened the value of property. A title so simplified would be sought for in many cases, in order that the owner might have greater facility in disposing of his property. The real truth of the matter he believed was to be traced to the feudal system, which attached superiority to land over any other property, and likewise to complications that had grown up from the ingenuity and research of a profitable nature to those whose business it was to transfer property from one hand to another. One of the great evils that existed in the country at the present time was that they had too large a number of persons who were not producers of wealth in any way at all, but were engaged in obtaining possession of the wealth which others had previously created. The great difficulty which was experienced in providing employment for a large number of people led in a great measure to so many persons being interposed between the beginning and the ending of any transaction. If gentlemen who were educated in the niceties of the law and followed the legal profession, were to follow the stream of emigration from this country to take possession of the property which the nation had in its distant dominions, useful employment of their talents might be found in assisting the occupants of land in taking and maintaining legal possession of their property. They would thus be assisting and contributing to the wealth of the country and in dispensing benefits all round.

Mr. FRANCIS TURNER said that as Mr. Bourne had expressed a great desire for the emigration of the non-wealth producing classes, he wished that gentleman had included the Civil Service in his remarks, for many of those who advocated changes in the land laws thought that there was no more useless class than the civil servants in the whole community. With regard to what Mr. Glover said concerning the transfer of shipping property from one man to another without any expense, he (the speaker) could not conceive why he, as a British taxpayer, should be taxed for the benefit of the shipowner. That theory amounted to nothing more or less than that the shipowner should have the benefit of transferring his property, and doing his business at the expense of the taxpayer of this country. If Mr. Glover sold a ship worth 10,000*l*. or 20,000*l*., he (the speaker) could not help thinking that it was not for the public advantage that he should be able to do so without any expense to himself. Each class of property should bear the expense of its own transfer, and that system which Mr. Glover seemed so much to admire, came to nothing more than this, that the shipowner should be able to transfer the expenses of doing their own business to the shoulders of somebody else. They all knew that government departments were not kept up without considerable expense to the nation. Mr. Urlin had had no doubt something to do with the working of the Irish Incumbered Estates Act, and that gentleman would not unnaturally desire that a system of transfer, which under his paternal direction had proved so effectual, should be introduced elsewhere. But where was the analogy between the two systems, and the conditions under which that Act was passed? Those who were old enough, and he regretted to say that he was among the number, to remember the passing of the Act, knew that it was passed because the landed proprietors of Ireland, or a large proportion of them, were in a state of utter bankruptcy. They had charged their lands in divers ways, and it became necessary by a severe and drastic measure to clear off those incumbrances, and to give a parliamentary title to persons who were willing to purchase under the Act. It was quite true that comparatively few mistakes were made under it. But that was due to the circumstance that every single title was expensively and laboriously investigated at the cost of that much enduring and constantly oppressed British taxpayer. It was not the landowner or the landowners that paid the shot, but it was they who live in England who provided the funds for their less contented fellow subjects over the Channel. Why should the English submit to the system of compulsory registration, the real advantage of which they failed to get anything like a substantial idea? Why there was a compulsory system of registration in the counties of Middlesex and Yorkshire, and yet within a very few years of the time of which they were now speaking, a number of forged conveyances were executed with respect to property in one of these counties. And why on earth should the community generally be taxed in order that those who invested their money in land should have their title secured, because after all that was the consideration with which they must deal when they thought of introducing a universal system of compulsory registration? What was it to him whether Mr. Glover or Mr. Urlin, or any other person should be able to invest his money in perfect security. Let him attend to his own business, to bear his own charges, and do not let him ask the British public to bear the burden.

Captain J. C. R. Colomb said it appeared to him that there was a little confusion in the discussion that had taken place—between the thing to be done and the way to do it. The question to be approached was—would this system of registration be a good thing or a bad thing? The question as to how to set about it or how to deal with difficulty that might be in the way was an entirely different issue. He must confess that it was a most difficult problem. With regard to what was said about titles being impeached, he could only say that the universal impression among landed proprietors in Ireland was that the Landed Estates Court title was the best title they could possibly have. He thought Mr. Urlin would bear him out in this, that it was a common thing for a man engaged in any transaction affecting his property where it was desirable for him to make his title clear, to avoid all complications, he put it through the Landed Estates Court, and bought it in himself, and that was an ordinary proceeding in Ireland. Sir Robert Torrens had said that it would be a simple matter to make changes in the law with regard to registration in Ireland, because there was there so complete a survey. No doubt there was a good deal of force in that; but it was not so simple as it at first appeared, because most of the landowners in Ireland did not exclusively own their property. As one drove along a road in that country one might say "that property belongs to so-and-so," but when the property came to be investigated, it was often found that it really belonged to somebody else, and often to two or three. As an unprofessional man, he was simply giving the commonplace view of the subject taken by men like himself. There were two or three points in the paper which he thought Mr. Urlin might have omitted, because they were side issues, and he stated them as a matter of fact, whereas they were mere matter of opinion. The lecturer said: "In travelling through Ireland in after years it might be observed that the best managed estates were usually those which had changed owners by means of the incumbered estates machinery." That was a mere matter of opinion, and he (the speaker), coming from the south of Ireland, stated distinctly that his experience was quite the contrary. It was stated "The transfer from a needy to a solvent class has been followed by development and improvement of various kinds." That was a statement that seemed to carry the weight of common sense with it. But he did not think that the improvements to which the writer had referred had been carried on in any considerable degree by any very large proportion of purchasers under the Incumbered Estates Act. The following statement was one in which he cordially and entirely concurred: "If he is really to be placed in a better position his title must be inscribed on a public register, and thereby kept from falling into doubt, complication, or obscurity." The whole system of land and business transactions in Ireland was one of vicious credit, and if they did not guard against the acuteness and shrewdness of the small village attorney, and make titles clear and absolutely secure, they would make the last state of Ireland worse than the first.

Mr. R. B. Martin, M.P., would have liked to have heard some person who could speak with authority, give an account of the system of land registration of the Isle of Man, where the titles are registered, and where at no great expense the transfer of land worked with the greatest regularity. The paper which had been read dealt with a great and interesting problem. It was one that must sooner or later be discussed at great length in another place, and it was a subject for which the public mind ought to be well prepared. The whole system of tenure of land, whatever they might possibly think as to the best way of remedying it, was drifting into a state of difficulty and cumbersomeness, from which it would be well to extricate it before it had gone too far. All circumstances considered, a question of such importance was well worthy of occupying the time of the Society.

Mr. Mulhall wished to call the attention of the Society to one point, and that was to the fact that the transfer of land in Prussia and France was much cheaper than in England, although it must necessarily be very complicated, especially in France, where there were so many millions of landowners. The number there was twelve or fourteen times greater than in this country, and yet it seemed that the transfer was effected with much less difficulty.

The President (James Caird, C.B., F.R.S.), in proposing a vote of thanks to Mr. Urlin for his excellent and well timed paper, referred also to the interesting and instructive remarks of Sir Robert Torrens. It was obvious that much of the facility of transfer in the Australian colonies arose from the recent origin of the title. They started with a clear title, and by a strict plan of registration kept it clear. He agreed with preceding speakers that in this country compulsory registration, in the sense of compelling every owner of fixed property to register, would not only be impolitic but unnecessary. But when property changed hands under the order of a landed estates court, which gave an indefeasible title, he thought registration should be compulsory. He was much struck with the fact mentioned by Mr. Urlin, that only four in a hundred of the titles given in Ireland by the incumbered estates court had been registered, and that twenty-four out of every twenty-five would thus in forty years have lost the advantage of the clear title with which they started. Looking to the probability of a rapid and large extension of small properties in Ireland, under the new Irish Land Bill, nothing but inextricable confusion of title must arise without compulsory registration. Every facility for this ought to be provided in the most simple and least expensive manner. It had been urged by one speaker that there was no pressing occasion for the introduction in England of any such change as Mr. Urlin's paper contemplated. But they must recollect that it was only under the pressure of great necessity, when the crisis became extreme, that great reforms could be effected. The potato disease of 1846, which swept away the food of a large portion of the people of Ireland, forced upon the landowners of that country an incumbered estates Act. The present position of the same class in Great Britain, in consequence of the depressed, and in too many cases ruined condition of their tenants, might render a similar enactment for this country unavoidable. And the Statistical Society were fortunate in having brought forward, by one of their members, whose knowledge and experience entitled him to be heard, a paper so instructive and well timed as that for which, in the name of the Society, he begged to thank Mr. Urlin.

Mr. Denny Urlin, after thanking the President and the Society for the kind and considerate manner in which his paper had been received, proceeded to reply to remarks and criticisms which had fallen from some of those who had spoken. He did not complain of that which must have been evident to all, that the discussion had not been to any great extent based upon the paper read, but had to a certain degree wandered off on topics connected with it, yet collateral. Many of the remarks made were upon the history and success of the scheme of registering the title to shipping property, and chiefly upon the adoption of that scheme, in the largest and most effective way which was possible, to the registering of title to all landed property in our great and growing Australian colonies. The success on the adaptation of a machinery at once most simple and effective, which was very well known to all who had taken the trouble to investigate the subject, was not exactly the question, although it arose out of the question, before the Society this evening. Yet he could not complain of the way in which attention had been directed to the registration to the title to property in ships, and in land at the antipodes, because the success here attained was really so important as to have become the key of the position. If shipping property, and large and small tracts of land in many different parts of the world could safely be inscribed on a public register (and all the evidence proved that it could), there was no logical escape from the conclusion that a similar method might be adopted at home. There are no genuine reasons, such as will bear scrutiny, against the adoption of this mode of registering title to property in England. The question had been asked, whether the parliamentary titles granted for thirty years past in Ireland under the special powers of the land tribunal, had all been found perfect? Now Mr. Walford, with all his various knowledge, might have known that a parliamentary or guaranteed title must, of necessity, be perfectly good and beyond dispute. Of course errors in such conveyances were possible, but the consequences of any such errors would fall not on the purchasers with such title, but on others; the fact was however (as Mr. Macdonell had rightly stated) that very few errors indeed had been from first to last committed. One of them was some years ago brought before Parliament. It was the claim of Lord Lanesborough to a narrow strip of ground along a highway, so narrow that the red line drawn on the map had obscured the boundary, and the map being on a very small scale the error was only visible on close examination with a magnifying glass. This was a fair example of the few mistakes made by the Irish Land Court in many thousand deeds of conveyance. The proposition placed before the Society this evening was briefly this—to create a similar land tribunal for England, and the only answer given had been a *non possumus;* as though all England were firmly and irrevocably bound to a clumsy, costly, and very verbose system of conveyancing. Now no proposal had been made to force on landowners a better system. The proposal made was to open for them the portals of a new court which must facilitate sales and purchases to an indescribable extent. If they felt it desirable to resort to such a mode of relief, surely such ought to be open to them. He (Mr. Denny Urlin) protested against the use of the term "compulsory registration," because it was not proposed by any one, certainly not by him, that there should be any compulsion. All that was asked was a mode of relief, in the shape of a land tribunal with a power of conferring indefeasible title, to be thrown open to those who for any reason desired to resort to it. One speaker had perhaps given the idea that conveyancing might under such a system be abolished; but this was quite imaginary. What was required was that the inscribed owner or owners might always be able to transfer by a simple deed, analogous to those daily used in the case of railway stock. Now the inscribed owners might be, and often would be, trustees only, and the equitable title, by settlement, agreement, or otherwise, would be by separate instruments not appearing in the register. The Isle of Man had been mentioned, and the fact he understood to be this, that in the Isle of Man the legal title, as regarded power of sale and transfer, was always to be found on a public register, whereas the equitable title might (if the parties so desired) be contained in private documents, not on the register, and into which a purchaser would, in the natural order of things, make no inquiry. This was actually the case now in England with regard to all the vast property in all railway stocks and shares. Mr. F. Turner had enlivened the debate with some humourous remarks; amongst others he had scouted the idea of a public register (as of shipping) kept up at the public expense. Well, the right method would certainly be to make any register of property, whether of landed or any other property, self-supporting by means of office fees. This was a very small point indeed. It had been said by one speaker that the Irish court had become of late years less valuable, because the results had become small, by statistical standards; but this conclusion was not one which a scientific man would arrive at. A land tribunal is a kind of hospital for the cure of titles, and a falling off in business proves only that remedial machinery has worked well. The land tribunal in Ireland has done in past years so large an amount of good work, that its comparative idleness now is no matter either of wonder or of censure. It was invented in 1849 to meet a most pressing emergency, of a kind which can hardly now recur. The elements of mischief of that particular kind do not now exist to any dangerous extent. Mr. F. Turner had alluded to the claims of purchasers of land in Ireland to the amount of 50 millions sterling, who had been on completing their purchases both legally and morally indemnified by the State against all fresh claims by tenants or otherwise. While recognising the justice of this claim, he (Mr. Denny Urlin) had thought it prudent, in drawing up his paper, not to touch on any "burning question" now discussed in political circles. The President had spoken of the landlord class at home, who were specially interested in the formation of a new land tribunal, with powers of conferring indefeasible title. This was one of the questions of the day. Although but a small proprietor, he (Mr Denny Urlin) had very much sympathy with a class on whom an undue share of taxation and burdens of all kinds had been placed. It was for many reasons desirable to provide that class with the means of selling all or any part of their property in open market, and without the factitious and unreasonable cost which now besets all such operations. Mr. Turner, who was so much afraid of a taxation of the public to the extent of a few thousands in return for a great public benefit, would be reassured when informed that a duty had always been levied in the Irish court since 1858, in aid of the cost of that court. With regard to the registry in Middlesex, it was hardly necessary to remind any who had the smallest knowledge of the subject, that the registry in Middlesex was one of deeds and not of title. The two things were absolutely different. A mere registry of deeds was not an advantage, but rather a source of trouble and expense, to every person concerned. A registration of title, although a vast benefit to the State, could not be introduced suddenly—only by slow degrees, on a devolution of ownership; and a land tribunal for clearing off incumbrances was the only possible method of bringing such a registry into effective operation in England. One speaker had questioned the statement with regard to the superior condition of the estates which had changed hands under the Irish Acts. This was certainly fair matter of opinion, and there were probably some small estates where no improvement was visible. His own conclusions were rather based on many larger examples; and it might make his meaning plainer to those who knew Ireland, if he adverted to the fact that large tracts of land had passed, under the machinery of the land court, into the hands of such men as Murland, the Pims, A. Pollok, Caimes of Drogheda, Jameson, Baron Martin, and Mitchell Henry. These were but a very few examples of a new order of proprietors, men of capital, of intellect, and of generosity, and to enroll such amongst the land owning class could not have been other than a great benefit to Ireland. All parts of Ireland were not alike circumstanced, but as to many parts there was no possible doubt of the advantage derived through the change of ownership into solvent and improving hands. The best wishes of all who really cared for Ireland were with landowners of the kind referred to; and the question now before the Society was whether great benefits might not be obtained by the giving of much extended facilities for purchase of lands in England by men of the same class. At present the land market is artificially barred, and capitalists, large and small, are driven to make their investments in any way but that which they would naturally choose, the soil of their native country.

On TEMPERATURE *and its* RELATION *to* MORTALITY: *an* ILLUSTRATION *of the* APPLICATION *of the* NUMERICAL METHOD *to the* DISCOVERY *of* TRUTH. *By* WILLIAM A. GUY, M.B., Cantab., F.R.S., *one of the Honorary Presidents of the Statistical Society.*

[Read before the Statistical Society, 15th March, 1881.]

IT is now nearly forty years (see the *Journal* of our Society, May, 1843) since I made an attempt to determine the influence of the seasons and weather on sickness and mortality here in London. Twenty years later, Dr. R. E. Scoresby-Jackson submitted to the Royal Society of Edinburgh an elaborate paper on the same subject, ingeniously illustrated by eight coloured circular diagrams. This paper is one that ought not to be passed over by any student of such matters who would know how industry intelligently directed can be made subservient to the discovery of truth.*

But the works to which I am anxious this evening to call your attention are the well known quarto tract of the younger Heberden, published in the first year of this century,† and the learned production of Dr. Thomas Short, issued in the middle of the last century.‡

What Heberden has to say on the subject of this paper will be found from p. 46 to p. 59 of his work, under the heading of "The "Weekly Table of Mortality." He begins by presenting us with Dr. Short's fifteenth table printed at p. 192, which ~~he~~ inserts rather than his eleventh table, because it comprises not the monthly number of deaths only, but also the ages at which the deaths happened. As I think there will be some advantage in starting with the more simple table of the two, I here insert the three columns of that table which throw most light on the subject of this paper. The entire table will be found at p. 176 of Dr. Short's work. It is headed, "Of the London Bills of Mortality Monthly for Fifteen "Years, viz., from 1st January, 1732, to 1st January, 1747."

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* "Transactions of the Royal Society of Edinburgh," vol. xxiii, part ii. [Since this paper was read, I have been favoured by Dr. Graham Balfour with a reference to a very elaborate and exhaustive paper by Alexander Buchan and Dr. Arthur Mitchell, published in the "Journal of the Scottish Meteorological "Society" for July, 1875, p. 186, of which I shall make some use in these pages. —W. A. GUY.]

† "Observations on the Increase and Decrease of different Diseases, and "particularly of the Plague." By William Heberden, jun., M.D., F.R.S., 1801. 4to.

‡ "New Observations, Natural, Moral, Civil, Political, and Medical, on City, "Town, and Country Bills of Mortality. To which are added Large and Clear "Abstracts of the best Authors who have wrote on that subject; with an Appendix "on the Weather and Meteors.' By Thomas Short, M.D., 1750. 8vo.

Table I.—*Buried.*

	Males.	Females.	Total.
January	19,366	19,195	38,561
February	16,559	17,442	34,001
March	17,378	16,643	35,021
April	15,024	15,022	30,046
May	16,944	16,325	33,269
June	13,850	14,021	27,871
July	12,689	12,799	25,488
August	14,934	14,520	29,454
September	15,562	15,644	31,206
October	14,825	15,868	30,693
November	15,345	16,281	31,626
December	15,312	16,287	31,599
Totals	187,788	191,047	378,835

I call this a *table of Record or Reference*, and will proceed to inquire what steps we ought to take in order to convert it into a table of *Analysis or Discovery*. How shall we arrange these figures so that they may reveal to us some truth? At present they are all confusion. Let us try to put order into them.

I assume, to begin with, that the figures of the table are such an approximation to the real numbers as fairly to represent what happened to a considerable number of the inhabitants of London in the aggregate of several successive years, about the middle of the eighteenth century.

The table, if we question it aright, will have something to reveal to us about the relation of the months and seasons of the year, and of that which most distinctly characterises them—their temperature —to the mortality: for I assume the greater influence of temperature on mortality, when compared with all other atmospheric conditions which can be measured and recorded by instruments, to be clearly established both by Heberden (to say nothing of earlier writers on this subject) and by Scoresby-Jackson. On the face of the table as it stands, the maximum mortality occurs in January (one of the winter months), and the minimum in July (a summer month), and that both for males and females. Is this because January is cold and July warm, for temperature is obviously the element in which the two months differ most? The way to find this out is to arrange the figures of the table by cold and hot months respectively.

But the months, like the weeks of which they consist, are but arbitrary divisions of time, and so are the seasons. May we not substitute for our seasons something more in accordance with the nature of things? That which we call *winter* in our climate does not embrace all the coldest months, nor that which we call *summer* all the hottest; and *spring*, which resembles *autumn* in the medium character of its temperature, is separated from it by the four warmest months. The vulgar division of the year into four quarters of three months each (first quarter, January, February, March; second quarter, April, May, June; third quarter, July, August, September; fourth quarter, October, November, December), does not readily lend itself to a scientific treatment of the relations existing between the two obviously allied conditions, temperature and mortality. For between the average temperature of January, February, and March, and the average temperature of October, November, and December, the difference is less than 2 degrees (1·9). We clearly improve on this division of the year when we substitute for it four groups of three months each, making December, January, and February to stand for *winter;* March, April, and May for *spring;* June, July, and August for *summer;* and September, October, and November for *autumn*. On an average of the five years 1838-42, the temperatures of these four seasons and their differences stood thus:—

Table II.

Quarters.	Average Temperatures.	Differences.	Seasons.	Average Temperatures.	Differences.
1st qr., Jan.—Mar....	42·9	1·9	Winter. Dec.—Feb...	38·8	12·6
2nd „ April—June	55·1	12·2	Spring. Mar.—May..	48·6	9·8
3rd „ July—Sept...	62·1	7·0	Summer. June—Aug.	63·5	14·9
4th „ Oct.—Dec. ..	44·8	17·3	Autumn. Sept.—Nov.	51·4	12·1

A glance at this tabular comparison will show the superiority of seasons over quarters, when temperature is the element to be inquired into. The differences between season and season are much more evenly, and therefore much more conveniently distributed; and it will be seen that between the winter and summer temperature there is an average difference of nearly 25 degrees (24·7°), such a difference as may be expected to make itself felt in the record of deaths. This difference is also in excess of that between the first and third quarter by 5·5° degrees.

But there is a better division of the year than either of the foregoing; I mean a division into three periods of four months each. The four hottest months being June, July, August, and September; the four coldest, December, January, February, and March; and the four temperate, April, May, October, and November. This division has one or two obvious advantages. In the first place, it creates for comparison two extremes and an average. In the second place it necessitates only one act of rectification, and that only needed when we are not dealing with a leap year. The temperate and the hot months consist each of 122 days, and so do the cold months in leap year. In other years, the three periods are made of equal length by adding to the four cold months the fraction $\frac{1}{121}$.

The average temperatures for these three divisions of the year, and the differences between them, are shown in the following table:—

Table III.

Divisions.	Average Temperatures.	Differences.
Four coldest months	40·0	—
,, temperate ,,	49·4	9·4
,, hottest ,,	62·3	12·9
Difference between the four coldest and four hottest months	—	22·3

By this arrangement, too, the average temperature of the four cold months (40·0°) is widely separated from that of the four hot months (62·3°).

Let us now convert our table of *Record and Reference* (Table I) into a table of *Analysis and Discovery*, by grouping its figures in accordance with this three-fold division:—

Table IV.

Months.	Burials.		
	Males.	Females.	Totals.
December	15,312	16,287	31,599
January	19,366	19,195	38,561
February	16,559	17,442	34,001
March	17,378	16,643	34,021
	68,615	69,567	138,182
April	15,024	15,022	30,046
May	16,944	16,325	33,269
October	14,825	15,868	30,693
November	15,345	16,281	31,626
	62,138	63,496	125,634
June	13,850	14,021	27,871
July	12,689	12,799	25,488
August	14,934	14,520	29,454
September	15,562	15,644	31,206
	57,035	56,984	114,019

The higher mortality incident to the four cold months of the year as compared with the four hot months, both in males and females, is brought into distinct relief by this simple arrangement of the figures of the earlier table. The intermediate position of the four temperate months is made equally manifest; so that, without any need of rectification of the figures of the first four months, we arrive at the conclusion that the mortality is greatly in excess in the cold season of the year. A simple calculation shows that if 55 in 100 die in the colder months, only 45 die in the warmer. Among individual months, January shows the highest figure, and July the lowest.

The figures of this table, then, afford a complete justification of Heberden's first proposition, that "the whole number of deaths is "greatest in January, February, and March, and least in June, "July, and August." This was true of the early part of the eighteenth century here in London. It may not have been true in Greece or Italy, or even in England in earlier periods of its history,* but we know it to be true of the England of to-day. Nor is it true only of the London of the early part of the eighteenth century, for Heberden appeals to Dr. Short's registers of five-and-twenty different country towns in England in proof that the deaths follow the same rule in the provinces as in the metropolis; and Woollcombe† embodies in one table, at the end of his work, the results obtained for no less than thirteen different countries, cities, towns, and groups of towns. I have rearranged this table, and have calculated the ratio per cent. of the mortality in winter and summer:—

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* It is not to be expected that the true relation of temperature and mortality would have revealed itself at that early period, when the plague prevailed to such an extent that among seventeen years for which we have weekly particulars of the number of deaths, it never destroyed less than 996 persons in one year. But I have thought it worth while to calculate the figures for four of those years in which the deaths by plague were least numerous. They are the years 1606, 1630, 1640, and 1643. Having subtracted week by week for each of these years, the deaths by plague and parish infection, I found that in 1606 the deaths followed the order now prevailing, the figures being as follows:—four cold months, 1,865; four temperate months, 1,625; four hot months, 1,415. In 1640 the smallest number of deaths occurred in the hot months, but in the other two years (1630 and 1643), the mortality varied directly as the temperature—greatest in the hot months, less in the temperate, least in the cold. The facts for these seventeen years will be found in "A Collection of the Yearly Bills of Mortality from 1657 to 1758 inclu-"sive, together with several other Bills of an earlier date," with several additions from Graunt, Petty, Corbyn Morris, &c., 1759.

† "Remarks on the Frequency and Fatality of different Diseases, particularly "on the Progressive Increase of Consumption, with Observations on the Influence "of the Seasons on Mortality." By William Woollcombe, M.D., 1808.

TABLE V.

Number of Years.	Places.	1 Deaths. Winter.	2 Deaths. Summer.	1 Ratio per Cent.	2 Ratio per Cent.
13	Sweden	20,690	18,880	52	48
60	Vevay, Switzerland	2,140	1,697	56	44
5	Stockholm	1,515	1,139	57	43
15	London	146,917	122,612	54	46
9	Manchester	2,427	1,788	57	43
6	Plymouth	1,446	1,003	59	41
7	York	1,210	956	56	44
3	Chester	478	340	58	42
8	Warrington	968	692	58	42
40	Blandford	829	645	56	44
20	Gainsborough	765	590	56	44
5	Eccles, near Manchester	455	415	52	48
	Twenty-five country towns in England	66,357	52,508	56	44

It will be observed that in this series of facts there is not a single exception to the rule that winter is more fatal to life than summer, though the excess of winter mortality ranges from the low figure of 52 per cent. to the high figure of 59.

The high mortality of the winter months may, therefore, be taken as a fact placed beyond the reach of doubt; but we have yet to consider the larger question of the relative position, in respect of temperature and mortality, of the three groups of four months each, including the four temperate months.

The three aggregates of burials for the three cold, temperate, and hot sections of the year, as deduced from the table which Heberden gives at p. 48, are 66,357; 61,991; and 52,508. Here we have the same order as above; but the maximum monthly mortality is shifted from January to March and April, and the minimum to August and September. So also with the seven years' register of burials of the city of York, published by Dr. White, and quoted by Heberden at p. 49. The four cold months figure for 1,210 deaths, the four temperate for 1,009, and the four hot months for 956, while the months of January and July resume their places at the top and bottom of the monthly return of deaths.

I ought here to mention, that when I wrote my paper in 1843, I was not aware that any writer had proposed to group the months by fours. But having lately had occasion to refer to Price's great work on "Reversionary Payments," I find that, though he did not propose to divide the year into three periods of four months each, he brought the months of June, July, August, and September together under the name of summer, and December, January, February, and March under the name of winter. By adding together the figures for the two spring and autumn months, I have been able to construct the following table, which refers to six places in England and abroad. The figures of the table have been rectified by allowing for the shortness of the four winter months :—

TABLE VI.—*Deaths in the Three Sections of the Year, as given for the undermentioned places by Dr. Price.**

Places.	Deaths.		
	Four Winter Months.	Four Temperate Months.	Four Summer Months.
Sweden (published 1772)	20,808	20,886	18,880
Stockholm (,,)	1,216	1,384	1,515
Gainsborough	773	735	590
Warrington	974	788	692
Manchester	2,440	2,120	1,788
Eccles, near Manchester	458	460	415

In this table, though Sweden and Stockholm show a slight excess of deaths in the four temperate months over those of the four cold months, three out of the four English towns follow the rule presently to be established, which places the cold and hot months at the two extremes of mortality, and the four temperate months in the intermediate position. With the one exception of Stockholm, it will be seen that the mortality of the winter months largely exceeds that of the summer.

The same order of the four quarters of the year prevailed, as Heberden tells us, at Edinburgh and Paris, and throughout Sweden.

But at Marseilles and Montpellier a wholly different state of things prevailed, as he shows by a table also inserted at page 49. In lieu of the mortality varying as the temperature, the four cold months displaying the highest and the four hot months the lowest mortality, the figures stand thus :—

TABLE VII.

	Marseilles.	Montpellier.
June, July, August, September	6,920	4,021
December, January, February, March	6,761	3,363
April, May, October, November	6,618	2,960

If, as is probably the case, the three groups of four months correspond in these southern districts of France to the coldest, hottest, and temperate divisions of the year, we have them ranged in the same order in either place, namely, the four hot, the four cold, and the four temperate months, so that if we mark the four months of greatest mortality by the figure 3, the four months of least mortality by the figure 1, and the four months of intermediate mortality by the figure 2, we shall have the following contrast:—

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* "Observations on Reversionary Payments," &c., &c. By Richard Price, D.D., F.R.S., sixth edition, B. W. Morgan, F.R.S., 1803. Vol. ii, p. 135.

Table VIII.

	Cold.	Hot.	Temperate.
England, Sweden, Edinburgh, and Paris	3	1	2
Marseilles and Montpellier	2	3	1

These figures give us good reason to believe that the order of the seasons, as it prevails in the more temperate climates, does not obtain in warmer countries; and it is likely that the Roman physician Celsus made reference to the warmer parts of Italy, when he penned the well-known statement, that the healthiest season was the spring, then the winter, then summer, and lastly the autumn.* The figures for Marseilles and Montpellier agree in placing the Roman spring at the top of the scale† as the healthiest season, and the Roman autumn at the bottom as the most fatal to life.

Having now converted Short's eleventh table, which presents us with the deaths that took place among the population of London during the early part of the last century, from a table of reference into a table of discovery, by arranging the figures in accordance with the probable theory that temperature to a great extent governs mortality, and found that theory to be justified by the figures, I proceed to treat Short's more elaborate table, the fifteenth of his series, given in full by Heberden at p. 47, in the same way, that is to say, I shall first give the table itself, and then submit it to the same process of analysis by rearrangement, as I have already adopted in respect of Short's eleventh table. This table is described as a table "for fifteen years, viz., from 1st January, 1728, to 1st January, "1743, being monthly, and begins with January and ends with "December." It comprises an aggregate of 405,951 deaths. For reasons presently to be explained, I have distinguished the maximum and minimum figures of the table by characteristic marks.

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* "Igitur saluberrimum ver est; proxime deinde ab hoc, hiems; periculosior "æstas; autumnus longe periculosissimus." Lib II, cap. i.

† For further remarks on this subject, see Appendix A.

TABLE IX.—*Ages at Death.*

Months.	Under 1 year.	2 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	Upwards of 90.	All Ages.
January	12,593	2,678 ●	1,306 ×	1,232 ×	3,021 ×	3,576 ×	3,730 ×	3,480	2,625 ×	1,988	1,203 ×	250 ×	37,682
February................	12,550	2,918	1,275	1,139	2,852	3,125	3,409	3,086	2,508	1,997 ×	1,072	226	36,157
March	12,681	3,254 ×	1,267	1,039	2,905	3,423	3,450	3,823 ×	2,281	1,855	1,002	146	37,126
April	12,731	3,184	1,168 ●	1,021	2,728	3,247	3,088	2,519	2,107	1,496	775	148	34,242
May......................	12,268	3,194	1,269	1,004	2,494	2,991	3,046	2,628	2,174	1,427	768	147	33,410
June	11,363	3,073	1,239	1,048	2,353	2,597	2,803	2,164 ●	1,726	1,129	595	107	30,197
July......................	10,063 ●	2,889	1,195	952	2,261	2,748	2,622 ●	2,259	1,558	1,021 ●	528	114	28,210
August	12,684	2,897	1,170	926 ●	2,241 ●	2,426 ●	2,755	2,543	1,555 ●	1,049	481 ●	102 ●	30,829
September	13,563	3,101	1,168 ●	1,081	2,401	2,933	2,850	2,558	1,787	1,212	617	104	33,375
October	13,832 ×	3,069	1,190	1,080	2,344	3,215	3,125	2,372	2,030	1,439	786	108	34,590
November	12,010	2,867	1,169	1,097	2,685	3,378	3,255	2,924	2,313	1,511	850	122	34,181
December	12,319	3,055	1,297	1,136	2,617	3,416	3,609	3,090	2,504	1,876	846	187	35,952
Totals	148,657	36,179	14,713	12,755	30,902	37,075	37,742	33,476	25,168	18,000	9,523	1,761	405,951

As this table was extracted by Heberden from Dr. Short's work, I first collated the one table with the other, and found that Heberden's table contained two misprints, one of slight importance, the other so considerable as to seriously affect the results. It added 1,000 to the figure in the fifth line of the sixth column, and as it happened, gave rise to the solitary exception to the rule presently to be referred to.

Having made this necessary correction, I proceed, as I did with Table I, to transform it from a table of reference into a table of discovery; and I begin with the column of deaths for all ages. When I arrange the figures of this column in three groups of four months each—the four coldest, four hottest, and four temperate months—I find the totals to fall into the same order as in Table IV; the figures being as follows:—

Four coldest months, 146,917; four temperate months, 136,423; four hottest months, 122,611.

So that again, and for a different series of years, we have the mortality varying inversely as the temperature. The figures of the two distinct series of fifteen years (the first fifteen ranging from 1728 to 1743; those of the second series from 1732 to 1747) yield the same results, and so far confirm each other. If, now, we place the figures of the two series side by side, we may perhaps discover one or more other points of resemblance:—

Table X.

Months.	1732-47.	1728-43.
December	31,599	35,952
January	28,561	37,682
February	34,001	36,157
March	34,021	37,126
	138,182	146,917
April	30,046	34,242
May	33,269	33,410
October	30,693	34,590
November	31,626	34,181
	125,634	136,423
June	27,871	30,197
July	25,488	28,210
August	29,454	30,829
September	31,206	33,375
	114,019	122,611
	337,835	405,951

The first noticeable coincidence between these two columns of figures is, that though the figures, both for the months and groups of months, differ throughout, the differences between the extreme numbers for the cold and hot seasons approximate very closely.

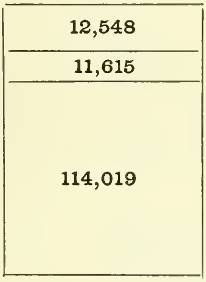
The difference between the extremes in the first column is 24,163, and in the second column 24,306.

Another fact worthy of notice is that when the figures of the three sections of the year are reduced to centesimal proportions of the totals, the percentages expressed in round numbers are identical. They are as follows:—

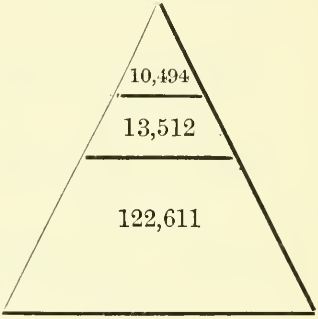
Four cold months, 37 per cent.; four temperate months, 33 per cent.; four hot months, 30 per cent.

I am not sure that the true state of the case will be made more clear by the use of tables of illustration; but I append two roughly drawn to scale; the one presenting the facts of the first column by a square, the other those of the second by a pyramidal arrangement. The second form lends itself to illustrations of maxima, minima, and average figures; the first form is perhaps less convenient.*

Illustrative Table A.



Illustrative Table B.



Resuming now the study of Table IX, I first distinguish the maxima from the minima in the several columns by characteristic signs. By so doing I convert this table of reference into what I may term a *Tentative Table.* It teaches me at once two facts, which obviously merit further investigation, namely, that after the fifth year of life, the highest mortality occurs uniformly, at all ages, in one or other of the first three months of the year, January, February, and March, and the lowest in one or other of the three months June, July, and August, and that in six out of nine instances the signs for the maxima and minima run parallel. To this rule it is true that, as the table stands (no correction having been made for the different lengths of the months), the period of 5 to 10 shows two exceptions; April and September both exhibit the same minimum number, 1,168. But if the number of days in these two months is raised to the level of thirty-one days, the anomaly at once disappears; and August, and not September, shows the lowest number of deaths. This needful correction made, there is but one exception to the rule, namely, the age from 2 to 5. Here then we have encouragement to proceed further with our inquiry by converting our table of reference into a table of discovery. This is done in Table XI, in which the months are grouped, as in Tables IV and XII, into three sections of four each:—

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* Both these forms are illustrated in Dr. Mayr's work on the "Theory and "Practice of Statistics," and have been in use among English statists.

TABLE XI.—*Ages at Death.*

Months.	Under 2.	2 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 and Upwards.	Totals.
December	12,319	3,055	1,297	1,136	2,617	3,416	3,609	3,090	2,504	1,876	846	187	35,952
January	12,593	2,678	1,306	1,232	3,021	3,576	3,730	3,480	2,625	1,988	1,203	250	37,682
February................	12,550	2,918	1,275	1,139	2,852	3,125	3,409	3,086	2,508	1,997	1,072	226	36,157
March	12,681	3,254	1,267	1,039	2,905	3,423	3,450	3,823	2,281	1,855	1,002	146	37,126
Four coldest	○ 50,143	● 11,905	× 5,145	× 4,546	× 11,395	× 13,540	× 14,198	× 13,479	× 9,918	× 7,716	× 4,123	× 809	146,917
April	12,731	3,184	1,168	1,021	2,728	3,247	3,088	2,549	2,107	1,496	775	148	34,242
May	12,268	3,194	1,269	1,004	2,494	2,991	3,046	2,628	2,174	1,427	768	147	33,410
October	13,832	3,069	1,190	1,080	2,344	3,215	3,125	2,372	2,030	1,439	786	108	34,590
November	12,010	2,867	1,169	1,097	2,685	3,378	3,255	2,924	2,313	1,511	850	122	34,181
Four temperate	× 50,841	× 12,314	○ 4,796	○ 4,202	○ 10,251	○ 12,831	○ 12,514	○ 10,473	○ 8,624	○ 5,873	○ 3,179	○ 525	136,423
June........................	11,363	3,073	1,239	1,048	2,353	2,597	2,803	2,164	1,726	1,129	595	107	30,197
July	10,063	2,889	1,195	952	2,261	2,748	2,622	2,259	1,558	1,021	528	114	28,210
August	12,684	2,897	1,170	926	2,241	2,426	2,755	2,543	1,555	1,049	481	102	30,829
September	13,563	3,101	1,168	1,081	2,401	2,933	2,850	2,558	1,787	1,212	617	104	33,375
Four hottest	● 47,673	○ 11,960	● 4,772	● 4,007	● 9,256	● 10,704	● 11,030	● 9,524	● 6,626	● 4,411	● 2,221	● 427	122,611
Totals	148,657	36,179	14,713	12,755	30,902	37,075	37,742	33,476	25,168	18,000	9,523	1,761	405,951

If we deal with this table as with Table IX, that is to say, if we distinguish the maximum, minimum, and also the average figures by appropriate marks (for the maxima a cross, for the minima a solid dot, and for the average an open circle) we see at once that the indications of Table IX have not misled us. The maxima, minima, and averages cease to present irregular curves, and become for all ages after 5, straight lines. In other words, they display perfectly uniform relations. The cold months are marked with the highest death-rate, the hot months with the lowest, the temperate months take the intermediate places. It will also be seen that, for infants under 2 years, the minimum mortality conforms to the rule of the ages after 5. But here a curious and instructive fact has to be noticed. According to the table as it stands, the intermediate mortality for children from 2 to 5 years of age, obtains in the hot months, inasmuch as the deaths exceed those of the cold months by 55. But I purposely abstained from making the rectification of one day for the cold months, a rectification rendered necessary by the occurrence among them of the month of February. This rectification, when worked out, required an addition of one day to be made to those four months for all the years comprised in the table that are not leap years. This rectification adds 72 deaths, and raises the number 11,905 to 11,977, or 17 in excess of 11,960. In other words, the last figure but one in the second column of the table becomes the minimum for the age from 2 to 5, and as a consequence, there is not a single exception to the rule that the least death-rate falls in the hottest months.*

I have not extended this rectification to the other columns of this table, but have applied it to the figures of the table which follows. In that table I have given the deaths for the several ages, with rectifications for the cold months, and I have added three columns of figures showing the approximate percentages for the three groups of cold, temperate, and hot months. It may be fitly called a table of discovery by arrangement or adjustment; and as such, may be commended as a powerful instrument for the discovery of truth in the domain of statistics.

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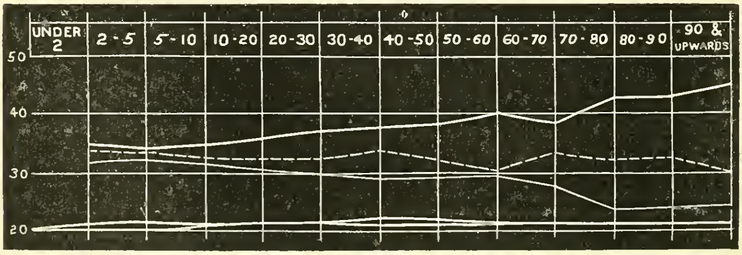
* The rectification required is as follows:—In the fifteen years comprised in the table there are eleven years that are not leap years. A day, or $\frac{1}{121}$ of the total deaths, has therefore to be added for eleven out of the fifteen years.

Table XII.

	1 Four Cold.	2 Four Temperate.	3 Four Hot.	Approximate Percentage. 1	 2	 3
Under 2	50,446	50,841	47,673	34	34	32
2 to 5	11,977	12,314	11,960	33	34	33
5 „ 10	5,177	4,796	4,772	35	33	32
10 „ 20	4,576	4,202	4,007	36	33	31
20 „ 30	11,464	10,251	9,256	37	33	30
30 „ 40	13,622	12,831	10,704	37	34	29
40 „ 50	14,284	12,514	11,030	38	33	29
50 „ 60	13,560	10,473	9,524	40	31	29
60 „ 70	9,978	8,624	6,636	39	34	27
70 „ 80	7,763	5,873	4,411	43	33	24
80 „ 90	4,148	3,179	3,221	43	33	24
90 and upwards	813	525	427	46	30	24

The results embodied in this table are of singular interest, for they add a new fact to our knowledge of the relation of temperature to mortality. Heberden laid great stress upon the truth that cold is the most effective cause of a high death-rate. But he thought that it produced its deleterious effects chiefly on persons above 60, and in a less degree on the consumptive. He did not make such a use of his figures as to discover the broad truths, 1. That the lowest mortality occurs at all ages in the summer, and with the exception of infants and children from 2 to 5 years of age, the highest in the winter; and 2. That the contrast between the high mortality of the cold months and the low mortality of the hot months becomes more apparent as age advances. I show this in the annexed illustration, by three curves, the maximum mortality being represented by the strong line, the minimum by the faint line, and the intermediate by the broken line. The lines roughly represent the approximate percentages of Table XII.

Illustrative Table C.



In this case the curves certainly help us to realise more clearly than the figures themselves the fact, that as age advances the two extremes of high and low mortality separate more and more widely from each other.

I shall now make the attempt to ascertain the diseases to which this high and low mortality are to be respectively attributed, so as to carry the inquiry beyond its present limits.

We know that cold weather is fatal to the aged, and we ascribe this their mortality to bronchitis as its leading cause. Perhaps we shall find that what is true of the bronchitis of old age is true in a less degree of the diseases of the lungs in the earlier periods of life, as well as of some diseases of other organs.

I have already stated that Heberden recognised the effect of cold in enhancing the mortality from consumption, but he does this without producing the figures that warrant his belief. Yet the materials for such a comparison are presented to us in his table for the three years 1797, 1798, and 1799, and I give the result for each year, and for the aggregate of the three years in the table that follows. I am also able, from the same source, to give the deaths from asthma, arranged in the same way, in Table XIV, and I may state (though I do not deem it necessary to construct a table for the purpose) that the aggregate figures for the three years, as obtained from the same source, are as follow:—

Cold months, 3,765; temperate months, 2,710; hot months, 2,189.

TABLE XIII.—*Deaths by Consumption in the Three Years* 1797-99.

Months.	1797.	1798.	1799.	Totals.
December	437	430	515	1,382
January	600	447	536	1,583
February	414	449	451	1,314
March	617	439	364	1,420
Four cold months	2,189	1,869	1,866	5,934
April	385	387	595	1,367
May	472	444	405	1,321
October	314	367	424	1,105
November	344	364	333	1,041
Four temperate months	1,515	1,562	1,757	4,834
June	336	349	340	1,025
July	293	384	363	1,040
August	350	268	290	908
September	239	318	263	820
Four hot months	1,290	1,396	1,330	4,016

Table XIV.—*Deaths by Asthma in the same Years.*

Months.	1797.	1798.	1799.	Totals.
December	39	50	106	195
January	88	56	114	258
February	63	54	117	234
March	117	58	63	238
Four cold months	325	231	400	956
April	65	39	81	185
May	30	38	48	116
October	31	20	19	70
November	27	35	35	97
Four temperate months	153	132	183	468
June	13	22	36	71
July	14	27	24	65
August	16	11	25	52
September	19	24	22	65
Four hot months	66	89	113	268

Table XIII fully justifies what Heberden said of consumption as most fatal in the cold months. Table XIV shows how fatally cold affects the asthmatic. The mortality in the cold months exceeds, as it will be seen, that of the hot months to a very remarkable degree. While the death-rate by consumption in the cold months in no year of the three amounts to double the rate of the hot months, in the case of the asthmatic it is more than twice as great in one year, nearly fourfold in a second, and close upon fivefold in a third. Nor is there any exception to the rule in any of the years comprised in either of the tables.

We see now why the lesser mortality of the hot season, already known to prevail among persons above 60, should extend through the whole of life for all ages without exception, and the greater mortality of the cold season, with the single exception of children under 2 years of age. Cold proves fatal in infancy and childhood mainly through the difficulty which must exist in maintaining a suitable temperature in union with a healthy atmosphere. Even in childhood the wasting maladies entered as consumption make themselves felt in the register of deaths, while the disease known as pulmonary consumption sweeps off a fifth or so of all who die between early youth and old age, and asthma and bronchitis complete the harvest of death among the aged.

There is another disease, or, to speak more precisely, another precursor of death in the chief diseases of the internal viscera (heart, lungs, liver, and kidneys), which attack chiefly middle-aged and aged adults, and which finds a place in Heberden's tables. I mean dropsy. The figures under this heading for the same three years, 1797-99, are given in the annexed table :—

Table XV.—*Deaths headed Dropsy in the same Years.*

Months.	1797.	1798.	1799.	Totals.
December	87	58	122	267
January	91	78	88	257
February	56	97	75	228
March	90	80	63	233
Four cold months	343	331	348	1,022
April	68	69	100	237
May	92	75	76	243
October	70	58	74	202
November	66	48	77	191
Four temperate months	296	250	327	873
June	54	45	69	168
July	61	54	93	208
August	56	61	47	164
September	50	46	59	155
Four hot months	234	218	284	735

Dropsy, then, follows the rule of the better defined diseases which chiefly attack the adult. Cold is most, and heat least, fatal to those who suffer in this way, while the temperate months again occupy an intermediate position.

Again, there is a miscellaneous group of causes of death to be found in Heberden's tables, under the heading "Apoplexy, palsy, "suddenly," the facts being given for nine years (namely, the six years 1763-68, and the three years 1797-99). As this group presents some points of interest, I present the figures in Table XVI, having rectified the numbers for the three seasons by reducing them to the same number (eighteen). In this case also the winter season shows itself as the time of greatest mortality, and the summer season as that of lowest mortality in seven years out of nine, and in the aggregate of the whole. But in one instance the mortality of the four temperate months exceeds that of the winter season, and in one instance also falls short of the mortality of the summer season; but in both cases the difference is very small. If we convert the totals into percentages, we obtain 41 as the percentage for the cold season, 28 as that for the hot season, and 31 as that for the temperate season, which in this as in previous tables occupies an intermediate place.

Table XVI.—*Apoplexy, Palsy, Suddenly, Nine Years* 1763-68, *and* 1797-99.

December	20	29	42	23	34	21	28	22	45	
January	33	32	32	34	45	39	45	45	30	
February	29	24	23	35	26	43	28	30	34	
March	19	20	27	17	40	30	39	30	33	
4 cold months*	101	111	124	109	145	133	140	127	142	1,142
April	22	22	26	33	22	16	22	20	39	
May	30	31	9	19	20	25	30	33	23	
October	30	23	16	13	21	19	20	20	29	
November	31	34	30	18	17	16	22	25	34	
4 temperate months*	113	110	81	83	80	76	94	98	125	860
June	21	17	20	25	26	24	18	18	18	
July	23	22	24	25	20	28	15	27	31	
August	21	19	23	17	20	11	25	23	27	
September	16	20	19	30	23	20	20	22	22	
4 hot months*	81	78	86	97	89	83	78	90	98	780

* The totals in these lines do not correspond with the totals of the figures for the four months, as additions have had to be made in some cases in order to equalise the number of weeks and days in the three divisions of the year. Each division is supposed to consist of eighteen weeks.

Convulsions may be said to be to the disorders and diseases of infancy what dropsy is to the diseases of the adult. They are rather forerunners than causes of death. Heberden's tables comprise this heading, and I am able to present in the annexed table the results for the three years 1797-99:—

Table XVII.—*Convulsions.*

	1797.	1798.	1799.	
December	344	344	419	
January	336	409	411	
February	279	329	344	
March	329	319	265	
Four cold months	1,417	1,474	1,439	4,330
April	300	291	450	
May	334	303	301	
October	320	309	364	
November	341	246	269	
Four temperate months	1,295	1,149	1,216	3,660
June	255	267	245	
July	204	302	271	
August	371	297	246	
September	331	333	217	
Four hot months	1,260	1,269	1,036	3,565

It will be seen that the figures for the first and third of the three years, as well as the totals, follow the usual order. The four cold months are most fatal, the four hot months least fatal, the four temperate months intermediate. The totals reduced to a percentage yield for the three seasons in their order the numbers 37 per cent., 32 per cent., and 31 per cent., the cold months contrasting strongly both with the temperate and the hot months; but the difference between the last two being inconsiderable. In this convulsions differ from most other causes or precursors of death.

It will be observed that the diseases comprised in Tables XIII, XIV, XV, XVI, and XVII all belong to the category of causes of death which vary inversely as the temperature, and display remarkable numerical differences. This will become more apparent if the larger figures of the tables are reduced to percentage proportions, thus:—

Table XVIII.—*Approximate Percentage.*

	Cold.	Temperate.	Hot.
Consumption	40	33	27
Asthma	57	27	16
Dropsy	39	33	28
Apoplexy, &c.	41	31	28
Convulsions	38	32	30

The influence of these diseases on the mortality at all ages proves predominant over other causes of death, of which some act directly as the temperature, and others follow an order of their own, that is to say, prove fatal neither in an inverse nor in a direct order.

The diseases returned in the bills of mortality as colic, flux, gripes, and looseness, belong to the category of those of which the fatality varies directly as the temperature, the hottest months being the most fatal, while the coldest are least destructive to life. I append the corrected figures for the six years 1763 to 1767 inclusive, and 1795:—

Table XIX.—*Deaths by Colic, Flux, &c.*

Four coldest months, from	6 to 42	average of the six years	136
„ temperate months, from	10 „ 34	„	141
„ hottest „ „	5 „ 37	„	156

Fever and small-pox both afford examples of diseases of the exceptional order, which do not vary directly or inversely with temperature; thus:—

TABLE XX.

	Months.		
	Four Cold.	Four Temperate.	Four Hot.
Fever (9 years)	8,631	8,787	8,020
Small pox (5 years)	4,509	3,844	3,983

So that the deaths from fever are most numerous in the mixed temperate months of spring and autumn, the cold and the hot months following in order; while the largest mortality from small-pox occurs in the cold months, which are followed in their order by the hot and temperate months.

There is also a difference worthy of remark in the order of the seasons, or divisions, of the year in at least one of the group of zymotic diseases, according as the disease is epidemic or non-epidemic. It seemed reasonable to expect that measles would follow the inverse order of diseases aggravated by cold; and so it turns out to be in three non-epidemic years, when the figures stand thus:—

Four cold months, 77 deaths; four temperate months, 66; four hot months, 49. While in a series of epidemic years there were no less than 139 deaths in each of the groups of temperate and hot months, made up of different numerical elements for the four months, and only 30 deaths for the four cold months.

But I must here remind the reader that I have been dealing hitherto with numerical returns which date as far back as the interval from 1732 to 1747, or with Heberden's tables, which begin with 1763 and end with 1799. (See his work from p. 8 to p. 27.) In referring to them I cannot withhold the expression of my surprise that numerical returns of a date so remote, and open to so many obvious objections, should have yielded to my method of treatment results, stamped, as it seems to me they are, with the characters of the highest probability, if not of positive certainty. But be this as it may, it is but natural that I should seek to know whether more recent returns confirm or invalidate, as the case may be, the inferences I have drawn from those earlier documents. With this object in view, it was but natural that I should turn to the work of Dr. Scoresby-Jackson, to which I referred at the beginning of this paper. In Table C of his elaborate paper I find all the numerical elements required for an answer to my inquiry. I present the figures in the subjoined tables:—

Table XXI.

	Deaths from all Causes.						Average of the Six Years.
	1857.	1858.	1859.	1860.	1861.	1862.	
December	216	250	263	258	241	259	248
January	253	214	243	281	304	297	265
February	250	238	247	331	228	251	257
March	250	258	232	283	220	257	250
	969	960	985	1,153	993	1,064	1,020
April	244	227	223	290	224	250	243
May	219	210	194	240	225	228	220
October	208	205	188	210	173	204	198
November	231	266	236	230	225	235	237
	902	908	841	970	847	917	898
June	213	219	189	219	196	215	209
July	211	224	181	215	204	192	205
August	224	200	179	192	173	168	189
September	211	195	178	183	165	196	188
	859	838	727	809	738	771	791
Totals	2,730	2,706	2,553	2,932	2,578	2,752	2709

The figures of this table show that what was true of the climate of London more than a century and a half ago was also true of the climate of Scotland a quarter of a century since, for the figures are taken from the reports of the registrar-general for Scotland, as they relate to the eight largest Scotch towns, and are doubtless faithfully recorded. If we reduce the results to approximate percentages, we obtain the following figures:—

Four cold months	38 per cent.
„ temperate months	33 „
„ hot months	29 „

It will be seen that there is not a single year of the six which forms an exception to the general rule. In each year and in the average of years the same order prevails. The mortality varies inversely as the temperature, and the figures, when reduced to percentages, exhibit inconsiderable fluctuations from year to year. This is shown in the following tabular arrangement:—

Table XXII.

	Years.						Approximate Average of the Six Years.
	1	2	3	4	5	6	
Four cold months	36	36	39	39	38	39	38
,, temperate months	33	33	33	33	33	33	33
,, hot months	31	31	29	28	29	28	29

Table II of the joint work of Buchan and Mitchell, already referred to, enables me to give the figures for London for the thirty years 1845-74. They are embodied in the following table. The figures for the temperate months are rectified by adding to the sixteen weeks which they comprise, the average figures for two weeks. The three sections are thus made to consist of eighteen weeks each.

Table XXIII.—*London*, 1845-74 = *Thirty Years.*

Four Cold Months.		Four Temperate Months.		Four Hot Months.	
December	7,003	April	5,002	June	5,496
January	5,649	May	4,619	July	4,858
February...........	5,350	October	4,584	August	5,218
March	6,759	November	5,097	September	6,152
	24,761		19,302		21,724
		Two weeks added	2,413		
			21,715		

The figures of this table conform to the rule in placing the cold months at the head of the list of deaths. But the temperate and hot months show a very near approach to equality. But as the thirty years comprise the three cholera epidemics of 1848-49, 1853-54, and 1866, which occasioned a vast excess of mortality in the four hot months, and especially in July, August, and September, the exclusion of these exceptional years restores the temperate and hot sections of the year to the position which the other tables have assigned to them.

Up to this time I have been dealing with the mixed populations of several countries and places, and with men, women and children exposed in every possible way and degree to the current atmospheric influences. I now propose to inquire whether the same relation of temperature to mortality obtains among the mixed class of persons whose lives have been insured, after the usual medical examination, and who, one with another, suffer less by atmospheric exposure, and the labours and privations which poverty (the lot of the majority) entails than their poorer neighbours and the mixed communities to which they belong. Thanks to a conversation with my friend Mr. George Humphreys, secretary and actuary to the Eagle Insurance Office, I have been made aware of the publication year by year of the experiences of the well-known German insurance office at Gotha to the half century ending 1878.* The tables present the deaths and causes of death of 22,014 persons (of course chiefly males) from twenty-three leading causes more or less definite, namely:—

1. Pulmonary consumption, pulmonary catarrh and bronchitis, pulmonary apoplexy, and inflammatory diseases of the chest, forming together a well-defined group of diseases of the lungs.

2. Old age.

3. Typhus, rheumatism of the joints, inflammation of the brain and mental diseases—all of which causes of death in common with 1 and 2 fall under the same category. The mortality varies inversely as the temperature.

4. Asiatic cholera, inflammation of the bowels, and chronic disease of the liver—these diseases cause a mortality varying directly as the temperature.

5. Cerebral apoplexy, chronic diseases of the brain and spinal cord, cancer, and diabetes, which give rise to a mortality in which the temperate months of the spring and autumn take the lead, and are followed in order by the cold and hot months.

6. Suicide and chronic disease of the heart, of which the victims are most numerous in the temperate months, the hot and cold months following in their order.

7. Bright's disease, and infectious disorders, other than cholera and fever, in which the cold months are most fatal, and the temperate months least so.

8. A mixed group of accidents, external injuries, and tumours which have their maximum mortality in the colder months, and their minimum in the temperate.

9. And lastly, a miscellaneous group of diseases and causes of death, in which the hot and temperate months exhibit a mortality equally in excess of the deaths in the cold months.

I proceed to give a summary of the results of this fifty years' experience of this, the leading insurance office of Germany.

The aggregates of the 22,014 deaths are grouped as follows:—

Four cold months, 7,703; four temperate months, 7,525; four hot months, 6,786; which figures yield the percentage proportions—35, 34, and 31.

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* Mittheilungen aus der Geschäfts- und Sterblichkeits-Statistik der Lebensversicherungsbank für Deutschland zu Gotha, für die funftzig Jahre von 1829 bis 1878. Herausgegeben von Dr. A. Emminghaus (1880).

The four affections of the lungs, consumption, bronchitis, pulmonary apoplexy, and pneumonia, if grouped under the one heading diseases of the lungs, present the following figures:—

Four cold months, 2,339; four temperate months, 2,148; four hot months, 1,524; or per cent., 39, 35, and 26.

The details are shown in the following table:—

Table XXIV.

	Months.		
	Four Cold.	Four Temperate.	Four Hot.
	Per cnt.	Per cnt.	Per cnt.
Consumption	36	34	30
Bronchitis, &c.	39	33	28
Pulmonary apoplexy	41	39	20
Pneumonia	42	37	21

2. Old age. Under this head the figures for the cold and temperate months show a near approach to equality. They are respectively 580 and 560; and the approximate percentages are:—

Four cold months, 36; four temperate months, 36; four hot months, 28.

3. The mixed group (typhus, rheumatism of the joints, inflammation of the brain, and mental diseases), which share with lung diseases and old age a death-rate varying inversely as the temperature, yield the following figures:—

Four cold months, 37; four temperate months, 35; four hot months, 28.

4. The three diseases which exhibit a death-rate ranging directly as the temperature (Asiatic cholera, inflammation of the bowels, and chronic diseases of the liver), present the following percentages:—

Four cold months, 25; four temperate, 32; four hot, 43.

These four groups are those which yield us the most definite results. I must refer to the table itself for information respecting those which yield figures of less interest in relation to our present inquiry.

Since this paper was read to the Society, I have been favoured by Dr. Graham Balfour with the figures relating to the British army. I give the figures in detail in Appendix B. The result may be briefly stated. During eighteen years 1817-36, deducting the figures for two cholera years, the mortality varied directly as the temperature, namely, four hot months, 267; four temperate months, 249; four cold months, 245. But for ten years spent in New Brunswick and Canada, the lowest mortality (67 and 346) occurred in the hot months, while the cold and temperate months proved nearly equally destructive—four cold months, 102 and 377; four temperate months, 105 and 380. The order of the seasons is not changed if we make the needful corrections for the colder months.

If the relation of temperature to mortality be really so direct and considerable as all my inquiries up to this point so clearly indicate, additional evidence of that relation must be obtainable in the shape of a comparison of the death-rate in two years or seasons in one of which the thermometer indicates a much lower temperature than the other. Such a comparison Heberden himself makes, in a table at p. 52 of his work. I give this table in a somewhat altered form:—

Table XXV.

Week Ending.	Mean Heat.				Week Ending.	Deaths.					
	Morn.	Noon.	Morn.	Noon.		Total Deaths.		Aged Above 60.		Under 2 Years.	
						1795.	1796.	1795.	1796.	1795.	1796.
1795.	°	°	°	°	1796.						
6th Jan.	25	29	40	46	5th Jan.	244	300	51	35	66	100
13th „	26	32	41	49	12th „	532	273	139	37	129	87
20th „	24	30	48	53	19th „	637	313	145	29	141	113
27th „	19	27	47	52	26th „	543	257	143	20	128	96
3rd Feb.	25	37	41	49	2nd Feb.	867	328	239	32	153	110

This comparison, if it were to stand alone, would be conclusive as to the close relation that exists between temperature and mortality, and especially in aged persons.

This will appear even more clearly if we place side by side the difference of temperature of the two years, and the different death-rates, thus:—

Table XXVI.

	Deaths above 60.		Difference of Temperature.	
	Warmer Year, 1796.	Colder Year, 1795.	Noon.	Noon.
			°	°
1st week	35	51	15	17
2nd „	37	139	15	17
3rd „	29	145	24	23
4th „	20	143	28	25
5th „	32	239	16	12

This table illustrates the power of cold in raising the mortality of the aged, and also of its continued operation through a series of weeks. The first week of the series exhibits a fall of 15° and 17°, and a death-rate augmented from 35 to 51; but the second week, with a like fall of temperature, shows a nearly fourfold increase. The cold continues and increases from 15 or 17 to the much higher figures of the table; and the further fall coupled with the longer continuance of cold raises the mortality fivefold, then sevenfold. The temperature rises several degrees in both the contrasted weeks; but the deaths show a further increase, being more than sevenfold. We have now become familiar with this distinctive effect of cold, but this instance (now eighty years old) is well worth recording.

In bringing to a close a paper embracing so many details, and embodying so many tables requiring comment and explanation, I deem it specially necessary to set forth under distinct propositions the leading facts and principles which appear to be established.

1. That the division of the year into three sections consisting respectively of four months each—the cold, the temperate, and the hot—is that best fitted to reveal the true relation of temperature and mortality.

2. That if, in a table which records the mortality of the several months of the year, we distinguish the maxima, minima, and average mortalities by appropriate marks or signs, we at once discover a certain relation between temperature and mortality.

3. That if we proceed to arrange the months of the table into three groups of four each, this relation between temperature and mortality shows itself still more distinctly. The number of deaths varies inversely as the temperature.

4. If we adopt the same procedure with a table which comprises the ages at death (making such corrections as may be needed to equalise the three sections of the year), the dependence of mortality on temperature is made apparent for every age and period of life, with the exception of the interval between 2 and 5 years.

5. That this method of procedure, which first converts a *table of record* into a *tentative table* (by distinctive marks), and then into a *table of analysis or discovery* (by rearrangement of its elements), is generally applicable to statistical inquiries.

6. That the establishment of this relation between temperature and mortality throughout the whole of life may be regarded as an extension of our knowledge.

7. That the inverse relation which exists between temperature and mortality is the ultimate result of a conflict of forces, in which the deaths from diseases of the lungs and from old age assert their predominance over deaths from such diseases as those of the liver and alimentary canal, which vary directly as the temperature, as well as over a mixed group of diseases, which, as causes of death, follow neither of these rules.

8. That epidemics of plague and parish infection in remote times, and of cholera and choleraic diarrhœa in our own days, have occasioned such an excess of deaths in the warmer months, as to mask the true order of mortality in these temperate regions.

9. That the mortality is found to vary inversely as the temperature, not only in this country at all ages, but also among insured lives in Germany; and that the hot season of the year has shown itself less fatal to life in one period of ten years among our soldiers in New Brunswick and Canada.

10. That in recognising the division of the year in which the temperature is lowest as that in which the greatest mortality occurs, we ought not to lose sight of the fact that the coldest season of the year is that which tempts or obliges persons of all ages to remain indoors, and so to incur some risks from which in the warmer season of the year they are free.

Appendix A.

The order of the seasons in ancient Rome in respect of mortality. The Roman autumn, condemned by Celsus as "*longe periculosissimus*," began on the 6th August, and may be said to have comprised the three months of August, September, and October. The remainder of the year must therefore have been distributed thus:—winter—November, December, January; spring—February, March, April; summer—May, June, July.

Now, if we arrange the deaths for Marseilles and Montpellier, as they are stated by Heberden at p. 49, we obtain the following results:—

Seasons.	Marseilles.	Montpellier.
Spring	4,982	2,104
Winter	5,225	2,843
Summer	4,850	2,480
Autumn	5,242	3,307

It would appear, then, that in the last century, these two cities, which may be taken to represent approximately the climate about which Celsus wrote, display a striking contrast between a spring marked by a low mortality and an autumn extremely fatal to life. In this they resemble the Rome of Celsus. But in Marseilles the summer is less fatal than the spring; while in Montpellier summer takes the place of winter, as coming next in order of healthiness to spring.

APPENDIX B.

The following table presents the figures with which I have been favoured by Dr. Graham Balfour:—

	Soldiers serving in		
	British America, from 1817 to 1836 inclusive (deducting Two Cholera Years).	New Brunswick. (From 1836 to 1846.)	Canada. (Ten Years.)
December	53	27	102
January	69	25	95
February	51	23	86
March	72	27	94
	245	102	377
April	66	24	85
May	61	22	97
October	66	26	97
November	56	33	101
	249	105	380
June	61	21	86
July	59	14	84
August	73	15	81
September	74	17	95
	267	67	346

DISCUSSION *on* DR. GUY'S PAPER.

MR. FREDERICK HENDRIKS observed that the Society was under much obligation to Dr. Guy for the admirable paper they had heard read. Considering the very short interval of time within which the paper had been prepared, his task must have been all the more difficult. There might exist a *primâ facie* impression that in the records of the London Assurance Societies there were large numbers of facts relating to the distribution of deaths over the various months of the year. He (Mr. Hendriks) might perhaps be permitted to disabuse the minds of the meeting, and to state that the impression was a wrong one. The registers of the London Assurance Societies had not been analysed and classed with the view of finding in what particular months deaths had arisen, although there might be no great difficulty in classifying the claims according to the months in which they were proved. This was, however, a different kind of classification. Fortunately for the object of Dr. Guy's paper, there does exist the recorded experience of the Gotha Life Insurance Bank for the fifty years ended in 1878. This had recently been printed at Weimar. It was a work that reflected not only the highest credit upon Dr. A. Emminghaus, the learned manager of that great institution, which has attained so high a degree of popularity in Germany, but also carries back well merited fame to the memory of the late finance counsellor, G. Hoff, its former manager, whose acquaintance had been made by him (Mr. Hendriks) and other members of this Society, and who had explained to them, both in Gotha and in London, the perfect statistical methods by which all the registrations of facts bearing upon the mathematical and financial condition of this immense mutual association for life assurance had been inaugurated and kept up. The fruit of this was well shown in the volume of its experience from which Dr. Guy had quoted. It appeared to him (Mr. Hendriks) that not only upon this question, but upon almost every point of interest to an actuary in the records of a great assurance society, this publication of the Gotha Society was by far the most valuable thing of the kind that had ever been published. So minute was the accuracy secured in every record, that it would be found that out of all the 22,017 deaths that had occurred, it was only in 3 cases that there was an absence of proof of the exact month in which the deaths took place. Taking the deaths of the whole year in the Gotha Society as 100, the proportions thereof throughout each month of the year stood thus:—

January	8·68
February	8·26
March	9·43
April	9·10
May	9·23
June	7·83
July	7·81
August	7·36
September	7·82
October	7·65
November	8·20
December	8·62
Unknown	0·01
	100·00

It will be seen from this, that the three months of highest mortality were found to be March, April, and May. As these are not the coldest three months of the year, the result so far was rather in a contrary direction from Dr. Guy's induction. It might, however, be a question whether we were comparing like things with like. He (Mr. Hendriks) rather understood Dr. Guy's interesting paper as touching upon general mortality of all classes of the community in the particular months of the year. Now the population at large was not under the same conditions as the population represented by the customers of an assurance society doing a business amongst the higher and middle classes. A very important disturbing element must be most carefully kept in view in comparing general mortality with assurance class mortality. Very few lives indeed came for assurance much under thirty. The cold weather mortality, which swept with so much violence over the very young and tender children, was therefore eliminated. The same remark might also to a very large extent be truly applicable to the effects of low temperature upon the very aged sick, for it was a fact susceptible of the most complete statistical proof, that taking every assurance society together, they had no very large number of lives at extreme ages, say 85 to 95 years of age. The monthly distribution of the claims upon assurance offices was not therefore at all largely affected by the fatal influences of cold weather on excessively aged lives. Although he (Mr. Hendriks) had ventured to offer this criticism, he was rather inclined, notwithstanding it, to consider that the Gotha experience, taken as a whole, was in support of Dr. Guy's deductions. The coldest half of the year in Germany was certainly from November to April inclusive. Now the Gotha mortality showed that out of every 100 deaths distributed over the twelve months of the year, 52·3 occurred in November to April, and only 47·7 in the remaining six months of the year, May to October. The deaths in the colder six months, of the average of the fifty years 1829-78, amongst lives assured by the Gotha Society, had thus exceeded, by 10 per cent. very nearly, the deaths in the warmer six months of the same years.

Mr. C. Walford regarded the paper as one of great interest, and Dr. Guy had shown considerable tact in bringing to the front those points which were most instructive and most philosophical. It happened that he (the speaker) was quite familiar with the works of the writers whom Dr. Guy had mentioned, and he took that opportunity of saying that he regarded Dr. Short as one of the most original observers and one of the most useful men this country had ever produced. All his works were of the greatest possible interest, and evinced most careful inquiry. With regard to Heberden, he might say he was a man in advance of his time, who aptly discovered the best sources of information, and who drew very able deductions from the facts which came before him. No doubt Heberden was the first to draw the deduction that cold was a fatal enemy to human life. With regard to Dr. Scoresby-Jackson he regarded that gentleman's work as one of great philosophic interest. The registrar-general for Scotland had over and over again referred to the influence of cold on mortality, and amongst other very interesting and important statistics, he had revealed the fact that in the west of Scotland the mortality differed very materially in the winter months from that of the east. The climate was much milder, owing to the influence, it was believed, of the gulf stream. He could not add anything to what had been said in regard to the masterly manner in which the Gotha Insurance Company, one of the most remarkable financial institutions in Europe, had kept its records.

In reference to Table I there was a fact which was rather surprising, and that was that the influence of climate was not precisely the same on the two sexes—a circumstance which he thought might be attributable in some measure to difference of occupation. There was no doubt that the influence of cold on mortality was very great, as all the life insurance offices knew to their cost, during the last two or three winters; and unfortunately for them the annuitants had not died off quite in the same ratio as the life insurers. He might also mention that the experience of accident insurance companies was somewhat remarkable in regard to extremely hot weather and extremely cold weather. They had more accidents then, than in any other season of the year. He had no doubt that moisture also was an important factor in influencing mortality.

Mr. A. H. Bailey, while concurring in what the previous speakers had said with regard to Dr. Guy's valuable paper, wished to make one remark. He (Dr. Guy) had made use of the term death-rate in a way which was perhaps a little misleading. What was ordinarily understood by the death-rate was the ratio of the number of deaths to the number living. It was therefore a little startling to find this statement made: "A simple calculation shows that if 55 in 100 die in the colder months, only 45 die in the warmer. Among the individual months June shows the highest figure, and July the lowest." One thing that struck him very much in this paper, was that the rule laid down by Dr. Guy, of mortality being in inverse ratio to temperature, seemed to apply to men and women in the prime of life almost as much as it did to children and old people; whereas he thought that while it was known that to old people and children cold weather was very unfavourable, there was a prevailing idea that to people in the prime of life cold weather was conducive to health. The only other remark he wished to make had been anticipated by Mr. Hendriks, and that was that great care must be taken in comparing the experiences of life insurance companies, otherwise they might lead to very erroneous conclusions.

Mr. J. B. Gates, jun., wished to call attention to that section of the paper where Dr. Guy mentioned that the death-rate ranged directly as the temperature in Asiatic cholera, inflammation of the bowels, and chronic diseases of the liver. He did not give a reason for this. He (the speaker) would ask whether the reason was that the high death-rate, as shown by the diagrams in the room, in the hot months, was owing to the consumption of fruit which was ripe in those seasons, and caused a great deal of cholera?

Mr. Philip Vanderbyl thought they were all convinced that temperature played a very important part in relation to mortality, but we must try to distinguish causes from coincidences. He would like, for instance, to have known the relative amount of moisture associated with the variations in temperature. We all know that people left this country at certain seasons, and went to high places of resort in Switzerland, and even to Colorado, where it was extremely cold, but where the air was *very dry*, and it was found that those places were very healthy. He ventured to draw the conclusion from this, that there were other concurrent circumstances as well as the mere effects of temperature which had an important bearing on the rate of mortality. Many invalids in this country were quite incapable of leaving their houses if there was the smallest chance of their feet getting damp, or even if the air felt damp, whereas they could go out in very cold weather, provided it was dry, without suffering any injury. Therefore he considered that the moisture played an important part, and materially modified the effects of temperature in relation to mortality.

Mr. JULAND DANVERS, in support of what the last speaker had said, thought that as regarded certain parts of India on which he had been able to obtain information, mortality was due more to the moist condition of the atmosphere than to the great extremes of heat and cold experienced. Many medical officers who had had experience in that country, and who had studied this subject, had given it as their opinion from the cases which had been admitted into hospitals and elsewhere in India, that sickness and mortality proceeded rather from excessive moisture than from excessive cold or heat.

Mr. S. BOURNE fully appreciated the high value of the paper, yet at the same time he would suggest, as one accustomed to deal with figures, although not precisely of the same kind, that the subject of the paper required a great deal of investigation before it was possible to accept the principles that had been advanced by Dr. Guy. There was a comparison made in Table X between two distinct series of fifteen years, and the remark was made that these coincided very closely. But it was not really two distinct periods of fifteen years, for eleven of the years were the same in each case, therefore the coincidence of the figures was not at all surprising. Again, with regard to the same table in the temperate months, the decrease of the deaths of the first series was 12½ per cent., or in other words from 138,182 in the four cold months, the deaths fell to 125,634 in the four temperate months; and if they took the other series the fall was only 10½ per cent., that was to say from 125,634 in the temperate to 114,019 in the four hot months. Now these two did not agree together at all, and therefore although the coincidence between the percentage of the hot months and the cold months as comparing together was tolerably justified, yet the temperate months threw out the calculation considerably, and would suggest the idea that possibly it might have been due to the continuity of the period rather than to the temperature. He also thought that moisture, as had been remarked, might have something to do with it. There was besides another element which might enter into the consideration, and that was the question of sunlight and shade. That too had no doubt a good deal to do with health and the duration of life. All other things being equal, he thought when the sun shone people were much more likely to be healthy than they were when it was shaded from their view. This was a fitting subject he thought for special investigation. They found a wide difference also in Table XXII, although there was the remarkable fact that in the four temperate months in each of the six years the percentage was exactly the same, 33 per cent., that had not at all borne out as shown by the percentage in the earlier tables any great uniformity in the percentage, and the difference between the highest and lowest percentages in the earlier tables was wider than it was in the latter. He only threw out these hints as showing that a great deal of investigation and research was necessary before they could accept as conclusive the results which a limited number of investigations brought out. Nevertheless they must all be indebted to Dr. Guy for bringing forward such an important subject in the able manner he had done.

Dr. C. E. SAUNDERS wished to know why Dr. Guy in Table XI had taken the ages of children under 2 instead of 1, to which Dr. Guy immediately replied that the sources of information were not available.

The Rev. I. DOXSEY wished to remark on the observations made by Mr. Vanderbyl, and also by Mr. Bourne, in respect to the two conditions of wet and sunshine. He had a great deal of information recently with respect to the conditions of life in winter time in Canada. Some friends of his who had been living for twenty years there, had been sojourning in this country for the last two or three winters, and they found that it was almost impossible for them to endure the cold in London, whilst in Montreal they could endure the cold when the thermometer was 40° below zero. From all the information that he had received of Canada, he found that the cold was so much more intense, and the air so much drier in that country, and that in winter time there was much bright sunshine, making it a most enjoyable season of the year; and he believed if the facts could be brought out with regard to health, it would be found that the absence of sunshine and the prevalence of moisture went far to neutralise the general conclusions which Dr. Guy had laid down with so much ability.

Dr. GUY, in reply, admitted the justice of Mr. Bailey's criticism respecting the use of the term death-rate. It should be corrected before his paper went to press. With respect to Mr. Gates's suggestion, that the mortality of the summer months might be caused by fruit, and not by increased temperature, he had been able to put that suggestion to the test in a conclusive way. The inmates of our convict prisons, with whom Dr. Guy had been brought into contact for several years, never have fruit to eat. They not only had no fruit, but no change of diet from one year's end to the other. Nor was the food they got in the hot weather in any way worse than in the cold. The care displayed at all times in selecting the prisoners' food could not be exceeded. If an attempt were made to introduce food not of the best possible quality, it would be sent back. The water too, as supplied to Millbank Prison, of which he had been speaking, was excellent. But the prisoners had diarrhœa in the warmer months chiefly, and the number of cases fluctuated with the temperature. As to the question of moisture, his paper did not profess to handle that. He had distinctly limited his paper to the effect of temperature. There was an inconvenient practice in all societies of finding fault with a man who had chosen a particular subject of inquiry, for not going in this direction and in that, beyond the limits he had prescribed to himself. The influence of moisture on mortality, for instance, was no part of his subject: it was beyond his limits. But Dr. Scoresby-Jackson had gone minutely into that as well as other probable causes of mortality. For the influence of moisture, barometric pressure, force and direction of wind, and so on, Dr. Guy must refer to Dr. Jackson's paper. Throughout his paper he (Dr. Guy) had spoken chiefly of England, but his impression was that in the hotter climates, although moisture might play its part, temperature was the main cause of the variation of the death-rate. Its influence would predominate, but in those regions the hottest seasons would be the most fatal, as the cold seasons were in this country. Dr. Guy would repeat what he began by stating, that he had endeavoured to work out a certain result by a certain method, and thus to show the value of that method. In this he believed he had succeeded, and he felt that some such method must be adopted if we would arrive at, or discover the true influence of moisture, of sunshine, or of any other element of the atmosphere. But it seemed unlikely that any meteorological influence, and any combination of such forces, would be found to equal the effect of temperature.

The Chairman (James Caird, Esq., C.B., F.R.S.) thought it was now his duty to ask the meeting to give Dr. Guy a cordial vote of thanks for his very interesting and instructive paper. It would appear that the warm months in this country were the most healthy. As soon as they went into India they get into a different condition of circumstances, and he quite understood that Dr. Guy's paper was confined to this country and the western parts of Europe, and was not intended in any way to apply to the warm regions of the earth, where the conditions were of a totally different kind. As a practical deduction he would suggest that insurance companies in charging an additional premium on persons going to warm countries during the winter months, and so escaping the risky period of our northern climate, would seem to be in error. A man with a delicacy of constitution who left this country towards the end of October, and made the voyage to India, and, after three or four months' residence there in the fine climate of the cool weather, returned home in spring, ought rather to be allowed a deduction than be called on to pay a penalty for thus taking the best means of lengthening his days. He begged in the name of the Statistical Society to offer to Dr. Guy the best thanks of the Society for his most useful paper.

The PROCEEDINGS *of the* STATISTICAL COMMITTEE *of the* TREASURY.

THE report of a Treasury Committee, of which Mr. Childers was chairman, appointed in 1877 to consider the question of harmonising our national statistics, has lately been issued as a Parliamentary paper, the report itself being dated 23rd December, 1879. The members of the Committee, besides Mr. Childers, were Colonel Romilly, Commissioner of Customs; Mr. Farrer, Secretary of the Board of Trade; Mr. Welby, of the Treasury; Mr. Shaw Lefevre, M.P., now First Commissioner of Works and Past President of the Statistical Society; Mr. A. J. Balfour, M.P.; and Sir M. W. Ridley, M.P.; the latter gentleman being afterwards succeeded by Mr. Ritchie, M.P. Sir John Lambert, of the Local Government Board, was also a member of the Committee at first, but took no part in the proceedings. The Treasury minute appointing the Committee runs as follows:—

"My Lords have before them a correspondence with the Boards of Trade and of Customs upon the subject of the control to be exercised by those departments respectively over the returns of trade and navigation of the United Kingdom which are annually presented to Parliament. The immediate question raised in this correspondence is one only of departmental interest, and might no doubt be easily settled by a reference to the report upon the statistical branches of the Customs which was made to the Treasury in the year 1870 by Mr. Shaw Lefevre and Mr. Foster; but on considering this question my Lords have been led to observe that it forms only a part, and a very small part, of a much larger subject, which seems to call for serious attention. This is the compilation and publication by Government departments of statistics generally. My Lords have before them a memorandum upon this subject drawn up by Mr. Lack, late assistant in the statistical branch of the Board of Trade, and another, prepared by Mr. Giffen, now the head of that department, both of which show that there is great room for improvement in the system on which official statistics are prepared.

"Indeed, it can scarcely be said that at present there is any system at all. Each department compiles and publishes from time to time information more or less detailed with regard to the business with which it is concerned, but there appears to be no fixed principles laid down for the guidance of the several offices, and the consequence is that but little harmony or coherence exists between the various classes of statistics thus published, comparison between them is often impossible, and their practical utility is thereby most seriously impaired. Perhaps no better proof of this is required than the fact that in connection with bills or motions in the House of Commons returns are constantly being moved for to supply information which is already before Parliament in official blue books, but which is there so imbedded in masses of detail that it is no wonder members shrink from the labour of extracting it for themselves.

"The chief vices of the present practice would seem to be a want of condensation, which leads to obscurity in the statistics themselves, and to waste in the printing of them, and a want of uniformity, which leads to positive confusion; and, although with varying laws and varying customs prevailing in the different divisions of the United Kingdom it may not be possible to introduce absolute harmony with the returns relating to each, my Lords believe that much might be done to simplify and systematise the statistical information which is now supplied from official sources, if the subject were to be fully and authoritatively inquired into.

"This information may be classified as follows:—

I. Local Government Reports and Papers.
II. Population Statistics.
III. Education Statistics.
IV. Judicial and Prison Statistics.
V. Financial Statistics.
VI. Board of Trade Returns.
VII. Miscellaneous Reports and Papers.

"And my Lords propose to appoint a committee to inquire and report upon these, attention being directed more especially to the following points:—

"(1.) The great mass and possibly unnecessary details to be found in some of the annual volumes of statistics.

"(2.) The duplication of printing which prevails very largely by means of anticipatory publications of more complete volumes of statistics and otherwise.

"(3.) The evils of differences in form in compiling statistics in the same subject for England, Scotland, and Ireland, and the want of harmony in the headings, classifications, dates, and other points where statistics in different subjects, which are allied directly or indirectly, ought to be made capable of intercomparison."

The report of the Committee is too long for insertion, and is besides deprived of authority by the dissent of Mr. Lefevre and Mr. Farrer, and superseded in interest by other matter in the volume; but we subjoin the conclusions of the report, which are as follows:—

"1. That each of the statistically important departments should be called upon to appoint an officer, who should have the supervision of all its statistics for presentation to Parliament, including those of its subordinate offices. This would lead to internal harmony, order, and proportion in the returns of each department, and would facilitate all the statistics of each service being brought together into one or more volumes representing that service. We agree with the view expressed by Mr. Lefevre and Mr. Foster, in their report on the revision of the trade statistics in 1869-70, that it is better for the department compiling the statistics to superintend the passing of their own returns through the press, and this view is supported by Mr. Lack in his evidence (see question 1256). We recommend, therefore, that the larger departments should each edit their own volume of statistics, subject to the control, which we are about to advise, with regard to the arrangement and the forms of their tables.

"2. That a small central statistical department should be appointed, subordinate to the Treasury, which should be charged with the preparation of the annual abstracts, home, foreign, and colonial; with the editing of a miscellaneous volume containing such returns from smaller offices as cannot be included in any of the volumes compiled by the larger departments of the service; with the compilation of an annual index to the returns presented to Parliament; and with the performance of such of the other statistical duties at present performed by the statistical department of the Board of Trade as are not directly connected with the administration of the Board of Trade. No form of statistics once settled should be altered without reference to this statistical department.

"3. That the head of the central statistical department, subordinated to the Treasury, should be temporarily associated, in accordance with Mr. Welby's suggestion, with some person of adequate position, having the requisite qualifications and time at his disposal, in order that they may go through the statistics of each department with the statistical officer permanently appointed by that department, the three submitting to the Treasury schemes for bringing the parliamentary statistics of each office into conformity with the principles we have laid down. We are of opinion that this preliminary arrangement should be limited to a period of one year, and—

"4. That when in the course of the year detailed reports shall have been so furnished, suggesting the form and contents for each volume of statistics, in accordance with the principles we have laid down, a small permanent board or commission should be appointed to carry on the supervision of statistics, and to secure a continuance of order and harmony in the general body of returns presented to Parliament.

"We strongly urge that these arrangements should be carried out as soon as possible, in view of the approaching census in 1881, the detail of which we consider should be settled in concurrence with the new statistical department. The delay which occurred in settling details for the census of 1871 notoriously occasioned great inconvenience.

"Considered financially, we believe that by such a simplification of parliamentary returns as we have suggested a very considerable reduction would be effected in the cost of their preparation and printing; while at the same time our national and parliamentary statistics would become a worthy record of the condition and of the progress of the United Kingdom."

The dissent of Mr. Farrer and Mr. Lefevre is expressed in the following separate report, which appears interesting:—

Separate Report of Mr. Lefevre and Mr. Farrer.

"We agree generally with Part I of the above Report, subject, in the case of one of us, to the observations contained in the subjoined memorandum. We think that the defects of the present statistics therein pointed out are due principally to want of co-operation between the various departments. We doubt, however, whether this co-operation could be effectively attained, either now or hereafter, by such a board as suggested in Part II of the Report. At the same time we agree that some supervising and harmonising agency, such as is proposed, as an interim measure, is desirable. But whilst we are of opinion that the influence and authority of the Treasury should for this purpose be brought to bear on the other offices, we hesitate to recommend the removal of the Statistical Department of the Board of Trade to the Treasury, as we think this is a matter to be considered and determined by Her Majesty's Government in connexion with the distribution of business between the different departments.

(Signed) George Shaw Lefevre.
"*December*, 1879. T. H. Farrer."

The following is a minute by Mr. Welby referred to in the report, and which appears to be of special interest as presumably representing a Treasury view:—

Memorandum by Mr. Welby.—Official Statistics.

"It is admitted that the official statistics presented to Parliament are not satisfactory. No general principle has been laid down for the guidance of departments in the preparation of statements and accounts intended to describe the course of administration and the progress of the nation.

"Heads of departments, therefore, follow their own inclinations. In some instances no record of administration from year to year is prepared and published, so that isolated accounts prescribed by Parliament or returns granted to private members contain all the information which the public can obtain in reference to the service concerned. This division includes most of the leading offices, such as the Treasury, the Secretaries of State, the Board of Trade.

"Other departments, such as the Army and Navy, do not publish general reports, but present to Parliament statements in greater or less detail illustrative of their administration, and special reports of certain branches, such as education, health, &c.

"Other departments, again, such as those of Revenue, the Local Government Board, the Committee of Council on Education, the Mint, &c., present yearly reports, forming a continuous narrative of their proceedings from year to year, recording changes in the law, and affording opportunity for commenting upon the shortcomings and noting the effect of such changes.

"The last of these three classes can alone be said to be based upon a principle. The annual reports of the departments forming this class differ very much among themselves and in detail, but all the departments making such reports endeavour therein to give a systematic account of their transactions, and for that purpose they are compelled to note circumstances and facts which would probably escape observation or record were no such obligation imposed upon the officers responsible for the conduct of the department. In other words, the necessity of preparing a report teaches public servants to observe facts and to generalise from them. The result can hardly fail to benefit both themselves and the public. Useful information is collected and put into print, it is subjected to criticism, revised from time to time and corrected, and thus the record of facts upon which Parliament and the country depend for guidance in action becomes day by day more valuable because more trustworthy.

"The system of annual reports is, however, open to the objection that it encourages the printing of matter not required for public information, and that, as is pointed out by Mr. Carmichael, the reports presented to Parliament are made to serve the double purpose of continuous public record, and of temporary instruction to administrative and departmental officers.

"If, then, the official statistics of the kingdom are to be framed according to an intelligible principle, it will be necessary, first, to consider whether the system of annual reports should not be extended further. This would probably not be practicable in the case of the leading departments of control and correspondence, such as the Treasury, the offices of the Secretaries of State, &c. Their functions are so varied, and are often of so confidential or political a nature, that it would not be easy or advisable to resume their transactions in an annual report. But, even in their cases, the statistical information which such departments present to Parliament might possibly be gathered into a volume, or at all events into more condensed or compact form than it is at present.

"There is a great difference, however, between the functions of the departments of control and correspondence and the functions of the purely executive departments, and annual reports might without inconvenience be required from the latter, *e.g.*, from the War Office, the Admiralty, the National Debt Office, Office of Works, and others of a like character.

"These reports containing all the statistics, as distinct from estimates and accounts, presented to Parliament by the War Office, the Admiralty, the National Debt Office (as the case may be), would be an improvement upon the present practice. Types of such reports are to be found in the reports presented to Congress by the War and Navy Departments of the United States.

"If this suggestion were adopted, the State would publish annually the group of trade and navigation statistics, the groups of judicial, prison, education, and local government statistics, and also groups of colonial and foreign statistics; reports from all the executive departments containing in a collected form the information which each department is required or thinks fit to lay before Parliament.

"Lastly, departments not making annual reports would collect such statistics as belong to them, and present them to Parliament in a compact and convenient shape.

"Each set of statistics would be under the control of the department charged with their preparation.

"The foregoing suggestion is merely an extension of present practice. It involves no change diminishing the control of heads of departments over their own work. It necessitates no interference with their freedom of action, and it need not therefore provoke opposition. It would not, however, secure homogeneity of statistical record, it would not check the printing of superfluous or useless matter, and it would not curb the propensity of departments to make their blue-books serve the purpose, at once, of public record and of instructions for the administrative staff of the departments.

"Mr. Carmichael proposes that the Government should establish a supervising and controlling authority over the statistical record annually presented to Parliament, for the purpose of maintaining harmony and order in the arrangement of the returns, and of seeing that the amount of information given by any one branch of the service is kept in due proportion to that furnished by others, and he thinks that this object might be attained by the appointment of a permanent statistical board composed of (say) twelve members, each of whom should be a representative of one of the large departments; that these representatives should be permanent officials of high standing and conversant with the statistics of their offices; that the board should be held responsible for seeing that the annual returns relating to the respective departments bear due relation to each other. He would appoint a small statistical department with a highly salaried and thoroughly efficient chief subordinate to this unpaid board, and he would make it the business of this Statistical Department to supervise and keep in harmony, under the board, the statistics from all the offices.

"It is obvious that the officers of a department are the persons best qualified to collect the statistics of that department. Their experience and technical knowledge gives them advantages which outsiders cannot attain. If this view be correct, the rule may be laid down that statistics must, in the first instance, be collected by the department transacting the business to which these statistics relate. But any person conversant with the Civil Service will admit, I think, the not unnatural but extreme jealousy with which departmental officers regard interference from without. The committee has had before it a very good example of such jealousy in the animated correspondence between the Customs and the Board of Trade on the subject of trade statistics; while in various instances we have, I think, found no great readiness to accept suggestions emanating from the committee itself. Good policy, therefore, would bid us consult, as far as is practicable, the sentiment, it may be the prejudice, of the officers employed in the collection of statistics, if we are to get the benefit of their goodwill and intelligence. Mr. Carmichael appears to me to have seized this principle, for his recommendations aim at enlisting the departments themselves in the work of harmonising and pruning their own statistics. He seems to expect, it is true, that an important part of the statistical duties now performed by departmental officers will eventually be absorbed into the Central Statistical Department. Upon this point I am not at present prepared to agree with him. I deprecate the idea of such a department. It would exist for the purpose of creating statistics, and I should be afraid that its appetite would only grow with indulgence. But I do not understand this absorption to form part of Mr. Carmichael's scheme, and it is unnecessary to speculate on future contingencies. In the present he proposes to entrust the duty of collecting and editing statistics to the departments themselves, under the control of a committee chosen from their own body, but assisted and advised by a salaried and permanent officer and a small staff.

"I think the suggestion valuable, as it is in harmony with the principles which recommend themselves to my judgment, and I should be ready to adopt it if I did not feel doubtful about the efficient working of such a committee, especially if it were appointed at the present moment, when it would have to undertake detailed labour for which it is hardly calculated. I will explain my meaning somewhat more fully. The statistics of the various departments are not as yet in a satisfactory condition. Mr. Childers and his committee can hardly do more than lay down general principles, to which the statistics of the different departments must be adjusted. The next step in order is an examination of the statistics of each department, followed by a report or memorandum showing the changes necessary in order to make these statistics conform with the principle laid down by Mr. Childers's committee. It is true that our sub-committees have done service in investigating the statistics of certain departments, and that the result of their labours will be useful when the statistics of these departments are examined, but neither Mr. Childers's committee nor the sub-committees into which it is divided have had the time, nor are they likely to find the time, required for such a systematic examination of each set of statistics as must, I think, be the consequences of our report. But if we recognise such a consequence to our report, we ought, I think, to satisfy ourselves that the persons to whom we propose to entrust the carrying out of it will be thoroughly able to do so, and I am not able to satisfy myself for the following reasons, that that will be the case with the representative committee contemplated by Mr. Carmichael.

"It is indispensable that the members of that committee should be chosen from the highest officers of the departments to which they belong. The permanent head of each office would, in fact, be its best representative. But the time of chief officers of departments is already fully occupied, and most of them, while jealous of interference with their own statistics, would be careless about the statistics of other departments, unless they happened (not a common attribute) to take a special interest in the subject. I have already given my reasons for thinking that a large amount of detailed work would devolve upon the committee immediately upon their appointment, and I am afraid that if the best qualified officers were placed upon it they could not devote to their work sufficient attention to ensure the success of the experiment, while if officers of lower rank were nominated they would not give the committee the weight which it requires. I am inclined therefore, to inquire whether there is any alternative measure which, if more tentative than that of Mr. Carmichael, would not be liable to the same risk of failure, and which might pave the way for some such measure as he has proposed for securing the co-operation of the departments in controlling their own statistics.

"It is evident that Mr. Childers's committee cannot undertake that minute analysis of the statistics of each department which alone would enable us to say with authority that such and such statements may be discontinued, that such and such information can be condemned or improved, and that such and such alterations are advisable. That duty can only be efficiently discharged by an officer or by officers whose time, as a whole, can be devoted to it. No more competent officer for such a task could be found than the present chief of the Statistical Department of the Board of Trade, Mr. Giffen, and it has occurred to me that, following the precedent afforded by the Treasury officers of accounts, we might devise somewhat similar machinery for the review of statistics, it being understood that Mr. Giffen would be one of the officers entrusted with this duty of review.

"In order to make my suggestion clear, I will state shortly the history and functions of the Treasury officers of accounts. Some thirty or forty years ago a skilled commission, inquiring into public accounts, pointed out the necessity of securing uniformity of system throughout that branch of the public service, adding that the duty of securing uniformity must rest with the Treasury. The recommendation had no immediate consequence, but many years afterwards Parliament passed the Exchequer and Audit Act (1866), which subjected the accounts of civil expenditure for the first time to the audit of an independent officer on behalf of the House of Commons. Before this Act could be put into operation, the Treasury was obliged to ascertain the balance for which each accountant was liable upon the opening of his account for Parliamentary audit; the Treasury was called upon also to provide the forms of account which each department must render under the above-cited Act to the Audit Office, and to define the books upon which the account must be founded. Two Commissioners of Public Accounts were appointed to assist the Treasury in the discharge of these duties, and these Commissioners exist now under a new name, that of Treasury officers of accounts, to assist the Treasury in maintaining uniformity of account throughout the civil service. They are consulting and inspecting officers, and it is their duty to inspect from time to time the accounts of the various offices, to see that no changes are introduced into them without Treasury assent, to suggest changes which they may think necessary, and consider recommendations bearing upon accounts which may be made to them by the practical officers of the departments which they visit. All questions of accounts arising in the civil departments and submitted to the Treasury are also referred to them for preliminary report. They have no original authority. They can only advise and suggest, or, if they think necessary, report to the Treasury. I think I can say that the experiment has worked successfully. At the outset these officers visited every department and made a report on its accounts to the Treasury, accompanied with recommendations. Upon the establishment of the new system, they continued their work of inspection, and became the consulting officers for the service. They have encountered no real difficulty in the performance of their duties, and I attribute the fair measure of success which they have achieved, in the first instance, to the fact that they are in constant personal communication with the account officers throughout the service, and secondly, to the fact that they have no original authority, and therefore do not come into conflict themselves with the officers of the various departments. Now, I admit at once that there is a wide difference between establishing uniformity of accounts and establishing uniformity of statistics, still the analogy, for it is not a precedent, is worthy of consideration, and I would ask whether two officers might not be deputed, on conditions somewhat similar to those prescribed for the Treasury officers of accounts, to examine the statistics of the different departments, and to devise means in concert with the departmental officers for securing uniformity of system, repression of superfluous statements, and generally improvements in the form and substance of the information given to the public. I suggest two officers, because they will carry more authority than one; but it would not be necessary that they should both be statisticians. In the case of the Treasury officers of account, one only is a skilled accountant, the other is appointed in virtue of the office which he holds and on grounds of general expediency; and in the case of the statistical inquiry, I should wish to see some person of weight associated with Mr. Giffen. A member of Parliament would be the best, or, if an official member were preferred, the secretary to the Board of Trade or a lord of the Treasury. These gentlemen should report their views upon each department in succession. In the greater number of instances I have little doubt that they would practically come to agreement with the departmental officers, and every case in which they did so would strengthen their position. The exceptions, as their exceptional position became more evident, would become more easy to deal with, and I should have great hopes that before long uniformity of system would be attained. I am anxious that these two gentlemen should not possess independent authority to enforce their views, but that they should make reports, *i.e.*, recommendations. After much consideration I have come to the conclusion that these reports should be addressed to the Treasury. No one would wish to add to the administrative duties of the Treasury, and I was therefore unwilling at first to bring the Treasury into question, but that department has peculiar advantages in dealing with other departments. Every office throughout the service is accustomed to a certain amount of Treasury control, and though it is not liked, it is softened by prescription and accepted. Further than that, the Treasury has a right of imposing its wishes on the great revenue departments which no other office can have, and the statistics of the revenue departments are most important, as we have seen in the case of the Customs. I have, therefore, though reluctantly, come to the conclusion that the reports must be addressed to the Treasury.

"When this preliminary work is accomplished, when the statistics of each office have been reviewed and only a few of the more difficult cases remain to be settled, and when therefore uniformity has only to be maintained, and when improvements recommended by experience only have to be adopted, it is quite probable that a statistician like Mr. Giffen, aided and controlled by a representative committee such as Mr. Carmichael recommends, would provide the best machinery for the future regulation of our statistics. I should wish to see the original work, as apart from work of review, of the Central Statistical Department confined to the preparation of abstracts, such as the useful work which Mr. Giffen now issues. It would probably be desirable that such a committee should be dependent on the Treasury rather than any other department, and that the enforcement of their recommendations should lie with the Treasury.

"In conclusion, I would remark that the adoption of such suggestions as I have made would put an end to the discussion between the Statistical Department of the Board of Trade and such departments as the Customs, inasmuch as there would be no official correspondence between the Central Statistical Department and the departments. The latter would have complete control over their own statistics. Suggestions and recommendations would of course be made to them, but if it came to the enforcement of a change in which they did not concur, the task of enforcing the change would lie with the Treasury.

"*July* 17, 1879. R. E. Welby."

So far the official reports of the committee. Amongst other matter contained in the blue book, the editor of the *Journal* takes leave to extract the following memorandum written by him as chief of the Statistical Department of the Board of Trade in 1876, and which was largely the foundation of the proceedings of the committee; and also the following minutes of his own evidence before the committee, in which the recommendations of the committee's report are virtually described and criticised.

"*Memorandum by Mr. Giffen.*

"Memorandum on the Compilation and Printing of the Statistics of the United Kingdom.

"It is now a settled practice of civilised governments to collect and publish statistics, and whatever theoretical doubts may be raised as to the utility and trustworthiness of many statistics, there can be no doubt the practice will be continued. Although many of the facts stated in these official tables, and probably the most essential ones are discoverable by private means, or with such aid as the publication of a government's own accounts would give, it is found highly convenient to have fuller official records to appeal to. The greater accuracy obtainable in them, as compared with most private compilations and the known impartiality of such records, may be considered to have rendered them indispensable in the public discussion of all matters of interest to Government where anything depends on the use of facts which can be stated in a statistical form.

"But the novelty of this systematic use of statistics, and the gradual way in which the business of collection and compilation has extended, appear to have brought with them many evils in most countries, and not least in England, where public offices and duties have been arranged and re-arranged from time to time as particular exigencies required. There has been no deliberate determination beforehand by a competent authority of what statistics it would be desirable to collect, and of the proportion of labour and cost of printing to be expended on each branch of statistics according to its relative importance. On the contrary, statistical offices have been permitted to grow up in each department of Government. Each ministry has been allowed to say for itself what statistics it would have and how it would collect them, subject only to the control of the Treasury, which could not be specially directed to this end. Returns have also been moved for by private members of parliament taking interest in particular subjects. Consequently, as was very natural, statistics have been developed according to the zeal or reputation of the heads of particular departments, according to the interest taken from time to time by changing ministers, and according to the interest taken from time to time in certain subjects by the public. This process, it must be admitted, was not wholly without advantage in a new growth, because statistics ought to be tried from time to time by the public requirements of them, and by the interest which those concerned with them can excite. But it has also brought the inevitable disadvantages of a want of plan. A species of accident has determined to a large extent the proportion given to certain statistics in the official compilations; the demand which has arisen at one time for certain information has acted long after the public interest, and the real causes for the intensity of that interest at particular moments, have disappeared; tables are continued which might to a large extent have been discontinued. What is just as bad, the independent action of different departments has prevented attempts at so framing their statistical tables as to be convenient for comparison. In population statistics, for instance, as we shall afterwards see, the registrar-general gives the facts as to the numbers, &c., of the population at certain ages; but in other statistics, such as those of pauperism and crime, a division into ages that would harmonise with those of the registrar-general is not adopted. In the population statistics again there is a certain classification of disease, but when we come to other health statistics there are totally different classifications. These evils are all aggravated by the circumstances of the various parts of the United Kingdom having still separate and independent administrations, so that the statistics of England, Scotland, and Ireland are not only sometimes ill-adapted for the comparison of what they tell on different subjects, but are not capable of being compared with each other. Thus the facts for the United Kingdom as a whole cannot be ascertained. When to all these evils is added the natural tendency to bulkiness incidental in such a work, where so many diligent workers are left almost without control, and especially without control from any quarter which can look to the proportion of the whole work, the fact that the annual statistics of the country are now a huge and forbidding mass of figures is quite sufficiently accounted for.

"The evil is a very great one. The mere mass of the annual library of statistics, which is printed, would be enough to prevent their general study; and as, in addition to mass, there are all the other evils of want of arrangement and proportion, it is little wonder that people 'do not see the forest for the trees,' that statistics are considered only for experts, except in so far as each public man or writer may take an interest in one or two particular volumes, that there is far too little furnishing of the mind with the broad knowledge of statistical data, and of the main conclusions from statistical facts, which should be by some means or other the common possession of public men. Almost the only effort made towards a general harmonising and condensation of these statistical libraries is that made by the statistical department of the Board of Trade, in which there are prepared statistical abstracts, showing, in a convenient form and for a long series of years, the principal statistical facts relating to the United Kingdom, the colonies, and foreign countries, besides larger volumes containing a fuller presentation of the facts, though for a shorter series of years. But the efforts of one department seem likely to be overwhelmed by the growing mass and divergencies of the statistics, unless some order is taken. The difficulties of condensation are increased by the want of a common plan originally. In any case, whatever summaries may be compiled, the need will always remain for the fuller statistics in each branch which experts and those interested may consult, and to which it is sometimes necessary for the public to resort when particular questions arise. That they may be used with the utmost advantage, they should not only be harmonised in abstracts such as are compiled by the Board of Trade, they should be in some good order from the beginning.

"It is mainly to call attention to the specific evils which have thus generally been referred to that this memorandum has been prepared. In presenting it, no apology, it is hoped, will be required for the freedom with which remarks have been made on the work, and apparent abuses which have grown up in the work of other departments. The faults traced out are obviously not of a kind for which anybody in particular is to blame. If some departments seem luxuriant in their statistics when the work of all is brought together for comparison, or if the question is asked why tables which were probably once required are continued without any apparent necessity at the present time, or if it is suggested that much of the utility of certain statistics is destroyed because they are not capable of comparison with other statistics not prepared in the same office, these are hardly suggestions which can affect those engaged on particular branches of statistics. The public prejudice is justly in favour of ample information, and there is thus little temptation to suppress tables when a particular subject is alone in view; and as to harmony between different sets of statistics, there has absolutely as yet been no agency for enabling those charged with them to consult and settle upon a common method. Nor is even the desire in some cases to make a show without real work to correspond very censurable. Nothing is more natural than for a zealous *employé* engaged on statistical work, and taking a great interest in it, to make the most of what he does, and exhibit the information he puts before the public in every variety of form. The result is very costly to the public, but it is the natural consequence of having no accepted measure for the relative value of statistics; so that with many public men who are otherwise well informed the mere bulk of certain tables is imposing, although a hundred pages of them may take less real work to prepare than a single page of a less pretentious publication.

"The particular points which will be insisted upon in the following pages are: 1. The great mass, and what appear to be unnecessary details which are found in some of the annual volumes of statistics. 2. The duplication of printing which prevails very largely, and that not merely owing to anticipatory publications of more complete volumes of statistics, but in other ways; and 3. The evils of differences in form in compiling statistics on the same subject—for England, Scotland, and Ireland, and the want of harmony in the headings, classifications, dates, and other points, where statistics on different subjects, which are allied directly or indirectly, ought to be made capable of intercomparison. For this purpose an examination has been made of what are considered the annual publications of official statistics, whether they are 'moved for' or command papers, and including sometimes what are only departmental papers. In many cases, so as to show a complete series of the papers on the same subject, it has been necessary to go beyond the papers of a single session, but wherever an early report or paper has thus been used, care has been taken to compare it with the last issued, so as to make sure that the defects pointed out still exist.

"FIRST GROUP—*Local Taxation and Administration.*

"It is proposed to deal with this under two subdivisions: (*a*) Poor Law (Local Government Board) reports and papers; (*b*) other local reports and papers.

"(*a.*) *Poor Law* (*Local Government Board*) *Reports and Papers.*

"Taking the last complete series, viz., for 1874-75, it appears that there are three reports presented to Parliament by command, one for England, Scotland, and Ireland respectively, besides the following papers moved for relating to pauperism in England: (1) twelve monthly returns of pauperism (122—A. Sess. 1875), each published about two months after the month to which it relates; (2) two half-yearly returns of paupers relieved on 1st January and 1st July (122–B), each issued about six months after date; (3) two half-yearly returns of in-maintenance and out-door relief (122–C) for the half years ending Lady-day and Michaelmas, the former issued in August and the latter in March following the expiry of the half-year comprised in the return; and (4) annual poor rate return (122–D). In addition, in 1874-75, there appear to have been three returns, not annuals, Nos. 267, 395, and 259, of which an account will also be given. The total mass of printing is 1,580 pages, of which the statistics comprised amount to 912 pages.

"As regards the *first* of these publications,—the report for England,—it is not proposed to offer any observations. It may be a question, statistically, whether there is any occasion to give so much detail as to the income and expenditure of every union, but perhaps Parliament may require a summary of the accounts of each accounting body. There appears, however, to be about 22 pages of unnecessary printing (p. 396 *et seq.* of report), where the numbers and ages of attendance of children at *each* workhouse school are given. The question might at least be put to the Poor Law Board for what reason this detail is given. So far as can be seen, the totals for counties, with the district schools on p. 418, added would be sufficient.

"Attention is also directed to pp. 447—469, containing summaries of local taxation for several years, which are for the most part a repetition of what is printed in local taxation papers. (See *postea*, p. 6.)

"Attention is also drawn to the printing of shillings and pence columns respecting grants in aid to medical officers, pp. 470—484. These columns are entirely unnecessary, are properly omitted in the accounts of general expenditure (pp. 284 *et seq.*), and it appears can only be given *per incuriam* in dealing with so small an item of expenditure. This printing of shillings and pence columns is an evil which runs through many of the reports and papers, and must add greatly to clerical and printers' labour, while tending to obscure the tables where they are given.

"The *second* publication to be dealt with is the report for Scotland, which is nearly as bulky a volume as the one for England. The accounts are extremely voluminous. Attention is particularly drawn to the unnecessary detail of paupers boarded out, pp. 22—56, and it is submitted that the summary on page 56 would have been sufficient, making a saving of 34 pages. There are also two diagrams, pp. 76 and 77, showing the monthly variations of pauperism in counties in the southern district and in Wigtonshire. Whatever may be the value of diagrams, their place ought to be in the more important publications, and if what is done for Scotland had been done for England, the expense would have been very great. It is submitted also that the details of receipts and expenditure per *parish*, occupying 36 pages (pp. 184—220) are unnecessary; that a much larger unit, like the union in England (even allowing that that unit is not itself too small), ought to be taken, and that probably the county summary (p. 221) contains all that is really necessary for statistical or practical purposes. The same remark applies to the number of paupers on given days, and number of poor relieved in each parish, occupying 84 pages (pp. 234—318); and to the receipts from church collections, which is a detail per parish of one of the items of receipt, and occupies no less than 18 pages (pp. 328—345), exclusive of the summary (p. 346). The distribution of parliamentary grants for medical relief and pauper lunatics is also shown with the same detail (pp. 347—379), occupying about 32 pages unnecessarily; also receipts and expenditure under Public Health Act (pp. 400—430). Altogether about 170 pages at least might be saved, if the unit of counties only instead of parishes were given; no such detail as to parishes being given in the English report, which deals with so much larger a subject. All these statements of receipts and expenditure have also shillings and pence columns. which obscures all the tables. It seems hardly a question of statistics, but attention may be called to what seems the needless list of 'applications to sheriffs' (pp. 156—162), and the list of modifications of Vaccination Act, and of parishes showing modes and dates of election of parochial boards (pp. 435—478). The omission of these would save about 60 pages, and no similar information is given in the English poor law report.

"While there is so much superfluous printing, the information is also given in a shape which prevents comparison with the report for England. The headings of the receipts and expenditure account are as follows in the English and Scotch reports:—

ENGLISH.

Receipts—
- From rates
- From other sources, exclusive of loans.

Expenditure—
- In-maintenance.
- Out-relief.
- Lunatics in asylums.
- Loans repaid.
- Salaries of officers, &c.
- Other relief.
- Law expenses.
- Payments to—
  - County, police, &c.
  - Highway boards.
  - Rural sanitary authority.
  - School boards.
  - On account of registration.
- Vaccination fees.
- Registration of voters, &c.
- Assessments.
- All others.

SCOTCH.

Receipts—
- From assessment.
- From loans raised on the security of the assessment.
- From voluntary contributions and church collections.
- From mortifications and other sources.

Expenditure—
- Relief of poor on the roll or register.
- ,, casual poor.
- Medical relief.
- Management.
- Law expenses.
- Repayment of loans.

"The number of paupers again, which is given for England on the 1st of each month, and in the report for 1st January and 1st July, is stated in the Scotch return for three days, 14th August, 1st January, and 14th May, and a mean of these three days. The Scotch classification is also different, the division being that of paupers and dependents, and there being no trace of the English division of out-door and in-door, and adult able-bodied and not able-bodied. In this classification for Scotland, moreover, no attempt is made to show the sex or age of the paupers, but the particular of sex is shown for the number of poor relieved, which is really the number of cases relieved, and thus gives no means of comparison with the pauperism of England. At the same time many details are given as to these cases, such as whether they are relieved under sheriff's order, &c., and whether they are natives of England, Ireland, or foreigners, and the like, while the distinction of paupers and dependents is maintained all through, and yet the facts which are thought essential in the English returns are not stated.

"The *third* publication is the report for Ireland. Here there are two diagrams as to workhouse relief, &c., which are not in the English report. Though they are not liable to the same observations as the Scotch diagram above referred to, because they relate to a larger area, the fact that they are given for Ireland, and not for England, and show nothing but what it would be expedient to give for one country as well as another, should raise the question whether, if they are not necessary for England, they can be at all necessary for Ireland.

"There appears also to be a good deal of surplus printing in this report. There are no less than 10 pages occupied with details of union officers' superannuations, and there are 47 pages of detail as to the relief given in *each* dispensary district under various Acts, the total amount involved being only about 141,000*l*. These details are also all given with shillings and pence columns. I think 41 pages might here be saved—35 pages of detail, and then 6 pages of an index to the dispensary districts, which need not be given at all. The English poor law report would occupy volumes if similar details were given.

"At the same time the statement of pauperism itself is not in a shape to be compared with the English and Scotch reports. Instead of the number of paupers on certain days in the year being taken as in England, the Irish return at some places (see pp. 88, &c.) gives only the number of persons who received relief in the year (apparently the number of cases). Then we have the 'collective number of days for all paupers relieved in the workhouse,' from which is deduced the average daily number of paupers in the workhouse, this total being only about a fifth part of the 'persons' who received relief in the workhouse during the year. Elsewhere in the report the average of the number of paupers on the last day in each week is taken as the average daily pauperism of the year, but the classification and other details are for the persons who were relieved. It is thus impossible to compare directly the pauperism of the three kingdoms, or to state what the pauperism of the United Kingdom is. The details of classification at p. 96 of the Irish report are wholly useless applied to England.

"The details of receipts and expenditure are also different in Ireland from what they are in England, but as this may partly arise from difference of circumstances, while in Ireland the in-door and out-door expenditure for poor relief are given as in England, it is not suggested that there is any serious evil calling for remedy here, although it might be possible to bring the two accounts more into harmony.

"Before leaving these three reports, it may also be pointed out that the annual accounts of receipts and expenditure all terminate at different dates—England at Lady-day, Scotland 14th May, and Ireland 29th September. This is an obvious cause of confusion, when an attempt is made to state the pauperism of the United Kingdom for a particular year.

"The *fourth* publication or series of publications to be noticed, is the set of returns, Nos. 122 A, B, C, and D, Sess. 1875, issued by the Local Government Board for England. These are annual returns, and are made under the following order:—

A. RETURNS "of COMPARATIVE STATEMENT of the Number of "PAUPERS of all classes (except Lunatic Paupers in "Asylums, and Vagrants) in Receipt of Relief on the "Last Day of each Week in the Months of January, "February, March, April, May, June, July, August, "September, October, November, and December, 1874 "and 1875 respectively:"

B. "Of STATEMENT of the Number of Paupers, distinguishing "the Number of Adult Able-bodied Paupers Relieved on "the 1st day of January, 1875:"
"Of SIMILAR STATEMENT for the 1st day of July 1875:"

C. “Of Statement of the Amount Expended for In-maintenance
“and Out-relief only, for the Half-year ended at Lady-
“day, 1875:”
“Of Similar Statement for the Half-year ended at
“Michaelmas, 1875:”

D. “And, of Statement of the Amount of Poor Rates Levied
“and Expended during the Year ended at Lady-day, 1875.”

“Of these, the return A is the barest statement of the number of paupers in the principal divisions of the country each month, and the object no doubt is to keep the country informed from month to month of the progress of pauperism. But the returns B, C, and D are all for half-yearly or yearly periods, or relate to the state of pauperism at a particular date in each half-year, and are all issued about six months after the date or half-year to which they refer. They can hardly be necessary therefore, like the monthly return, for current information about pauperism, and they must tend to delay the annual report, in which the information they contain, apart from some details, is embodied.

“As to this last point, the facts are that the summaries in the two B returns, occupying 8 pages each, or 16 altogether, are reprinted with their introductions at pp. 365—385 of the appendix to the annual report, the repetition being 20 pages altogether. The remainder of the return, extending to 40 pages, is not reprinted in the report, but merely gives the same information as in the summaries for each union, an index of the unions being added. The summaries in the two C returns again, with their introduction, occupying 14 pages, are reprinted at pages 355—364 of the appendix to the annual report. The remainder of the return, extending to 23 pages, is not reprinted in the report, but is merely occupied with details for each union, and with an index to the unions, that is, with details of in-maintenance and out-door relief for each half-year. And the whole of the return (D), (Annual Poor Rate Return) extending to 16 pages, is reprinted at page 283 *et seq.* of the annual report, the only difference being that this report gives the details for the unions, whereas the return itself is only in summary. Altogether the duplicate printing of those three returns amounts to at least 50 pages, and if the parts of B and C which are not duplicated are to be considered superfluous, this would add 63 pages half-yearly, or 126 pages annually to the total of useless printed matter.

“The *fifth* publication to be noticed is the return 259 and 259–I, which is also a return of in-maintenance and out-door relief, and is itself partly a mere reprint of two columns of pp. 284—343 of the appendix to the annual report, viz., the columns showing the expenditure for in-maintenance and out-door relief, and partly a new return in respect of the addition of a column showing the total of in and out-door relief together, and another column showing the proportion of out-door relief to the total. These two columns might of course be added to the tables in the report, thus saving about 25 pages of printed matter, if the information is to be continued annually.

“The *sixth* publication, Return 267, is a comparison of the pauperism in all England and the metropolis for a series of years, and is apparently a special return, while it is also only a few pages. It may be noticed, however, that the averages of total annual pauperism do not correspond in the earlier years with those at pages 386 and 387 of the annual report (Census of Paupers). Thus the average in the return for the year ended Lady-day, 1859, is 865, 446, but the average worked out from the census table in the report, is 841, 780. There is no doubt a good explanation of the discrepancy, but it is a danger of multiplying the returns that the figures get changed or the rectifications made at one time are not always remembered.

"The *seventh* publication, Return 395, relates to valuation, apparently only to unions where re-valuations have been made, and is not here objected to, the details not being required for statistical purposes, but being of a kind to suggest that they may be required for other business uses.

"The conclusions as to these poor law publications may be thus summed up. In the annual reports themselves, there are about 293 pages of superfluous printed matter, mainly in the Scotch and Irish reports; in the Returns B, C, and D of the English Local Government Board there are 50 pages of matter reprinted in the annual report, besides 126 pages of apparently superfluous matter; and in the Return 259-I, there are 25 pages which might be saved, and yet all the information required would be printed by the mere addition of two columns to tables already in the report. The total apparent saving possible is 494 pages. In addition it has been pointed out that the headings of the tables as to receipts and expenditure in the reports for England, Scotland, and Ireland differ; that the pauperism is stated on a different principle in each of the three kingdoms, so that a statement for the United Kingdom is impossible, and that the dates for which the yearly accounts are made up are also different. Attention has also been called to the printing of local taxation returns in the annual report, those returns appearing in other publications of the Local Government Board, as will presently be noticed.

(*b*.) *Local Taxation and Administration, exclusive of Poor Law Publications.*

"We come then to the second division of the first group of publications we are examining, those relating to local taxation exclusive of the poor law, comprising 777 pages; the papers enumerated being altogether 12 in number (see list, Appendix A). The accounts of expenditure by school boards, &c., might also have been included, but it is more convenient to place them in another group. There is less room for observation here, because those returns are for the most part accounts or summaries of accounts, and may be required primarily for non statistical purposes, while the facts of the accounts terminating at different dates and other discrepancies, are now tolerably familiar.

"The *first* point to notice for our present purpose is the reprinting of the summaries of local taxation in the report of the Local Government Board. A summary is prefixed to the general abstract of local taxation returns for 1874-75, another to the abstract of county treasurers' accounts, and a third to the abstract of municipal borough accounts; and these are all reprinted for a year long after date, together with a statement of the rateable value of municipal boroughs, which is duplicated in the municipal borough accounts, at p. 447 of the appendix to the Local Government Board report, occupying there 12 pages. There are also in this report several pages extracted from special returns as to loans.

"The *second* point is that in any view the returns as to highways and turnpike trusts are given in too much detail for each highway board or district and turnpike trust. In the English highway return there are 70 pages of this detail, and in the trust return 67 pages, so that there is far more detail on this head than there is of the far larger expenditure under the poor law. In the Scotch turnpike trusts return there are about 17 pages of such detail, altogether about 154 pages of doubtful matter. These detailed accounts are also published with shillings and pence columns, the omission of which alone would go far to reduce the space occupied.

"*Third.* The pilotage return is also most voluminous, extending to 125 pages, while it has also no summary, so that it can hardly be used at all for statistical purposes.

"*Fourth.* The following is a statement of the different dates at which the local accounts terminate, which helps to make them obscure and difficult of comparison with each other:—

	Date of Termination.		
	England.	Scotland.	Ireland.
Poor relief	Lady-day	14th May	29th September
Metropolitan local management	The year last ended previous to June	No corresponding accounts. The accounts under the Public Health Acts are in the Poor Law Report	
Urban Sanitary Authorities	"		The Irish accounts do not correspond in divisions, and are made up generally for latest period of twelve months preceding 31st December
Rural Sanitary Authorities	Lady-day		
Lighting and watching	Year last ended previous to June		
Sewers rates	"		
Drainage and embankment	"		
Burial board	"		
Church rates	Easter-day		
Markets and fairs	Year last ended previous to June		
Bridges and ferries	"		
Harbours	"		
County treasurers	Michaelmas	Not stated	
Muncipal boroughs	31st August	"	
Metropolitan Board of Works	31st December	No corresponding accounts	
Chamber of London	Partly 29th September, and partly 31st December		
Metropolitan police	31st March		
Turnpike trusts	31st December	Whitsunday	
Highways	Partly 25th March, and partly 31st December	—	
Pilotage	31st December	31st December	31st December

"Nothing can be worse than this medley. There is of course an obvious practical reason for Scotch accounts terminating at Whitsunday, which is the annual removal 'term' for farms and houses; but a good deal of the discrepancies are as obviously removable.

"*Fifth.* The abstract of local taxation returns should also be made more comprehensive, and include at least the county treasurers and municipal boroughs.

"*Sixth.* The Chamber of London account is well known not to exhibit the whole accounts of the city of London, of which it might be desirable to obtain a summary in a prescribed form, which would be all that is requisite statistically, and need not occupy more than a few pages.

"*Seventh.* There is room for great improvement in the headings of various summaries of local accounts, so that in addition to exhibiting what is specially required for each particular subject, an abstract under certain general heads, such as receipts from rates, tolls, and dues, sales of property, loans and other sources, and expenditure on poor relief, education, public works, administration, interest on loans, and loans paid off, or the like, would be rendered possible.

"Altogether about 170 pages of printed matter might apparently be reduced in these local taxation papers, with much more if the pilotage accounts could be reduced. And the reforms which ought to be tried in the way of harmonising dates and headings of returns, so as to make the results more clear, are manifold. In time it might also be a subject for consideration whether the detail for every accounting body is to be published, or whether it might not be sufficient to print in detail the figures for the larger bodies only, all the rest being *summarised* in some way. The detail in any case is not at all required for statistical purposes.

"Second Group.—*The Population Statistics.*

"The publications in this group comprise four volumes of annual reports, one for England, *two* for Scotland, and one for Ireland, extending in all to 961 pages, besides weekly, monthly, and quarterly summaries. In addition there is an annual table of births, marriages, and deaths in England, and annual summary for London, &c., and an abstract for Ireland. The total number of pages is 2,399.

"It is proposed first of all to examine the four annual reports, beginning with that for England, with the special object of pointing out how far it may be worth inquiring whether the tables are too voluminous, and next of showing some of the more important differences between the English, Scotch, and Irish statistics, which render difficult the consolidation of these statistics for the United Kingdom.

"(1.) In the annual report for England (for 1873) there are 61 pages of preliminary tables, with which it is not proposed to deal, as they are for the most part summaries, and in a varied form, except it may be noticed there are three pages of reprint from the emigration statistics at pp. 111—113, and that one or two pages following about the army are also a reprint from the army statistics. It is submitted that in this and other cases, although the statistics of other departments may be referred to in a report, it would be sufficient to give the correct reference to the proper sources of information instead of reprinting selected tables.

"Besides these preliminary tables, however, there are no less than 270 pages of an appendix, including many details, which are *primâ facie* unnecessary. Of these there are :—

Number of Pages.			
20	Details of marriages by districts	pp.	6— 25
9	,, marriages, births, and deaths by districts	,,	32— 40
44	,, births and deaths only in subdistricts	,,	41— 84
17	,, deaths in public institutions by subdistricts	,,	102—118
18	Deaths at different ages in *districts*	,,	124—141
18	Deaths from different causes in the registration counties	,,	166—183
10	Area, &c., and deaths from several causes, and inquests by districts	,,	186—195
136			

"In addition there are one or two pages in an appendix to a letter by Dr. Farr on the health of England, such as pages 245—246, where each separate case of death by lightning is specified, which are perhaps of doubtful utility; but the above are *blocks* of matter to which it may be advisable now to confine attention. What I have to suggest is that an inquiry ought to be made as to the utility of giving details for these small divisions. It will be seen on looking at the pages marked that in each case, besides these pages, there is a summary giving the details for large divisions, which is not here objected to, the only point now suggested for inquiry being that of excessive sub-division. It is obvious that the more we subdivide, beyond a certain point, the less trustworthy the data will tend to become for any useful comparison. The averages are more liable to be disturbed by purely accidental causes. Thus, to take the first three items in the above list: the details of marriages in districts, of marriages, births, and deaths in districts, and of births and deaths only in sub-districts, it might be asked whether it is proposed to deduce any useful comparison as to the state of health or industrial prosperity in these districts or sub-districts. I am not aware that any such or similar inquiry has ever been made, and I could only conceive its being attempted for one or two large districts of exceptional population, where the units are large enough to give a real average. In the preliminary tables and in the report itself no attempt is made to use these tables for any purpose, the utmost that is done being to work out the proportions of deaths, &c., per 1,000 persons living in counties. Even the utility of this last comparison may be doubtful, as there are not the same means of estimating the population for a county at intermediate years between two census dates as there are for the whole of England. When we subdivide further the data must still be more difficult.

"The details of deaths in public institutions are professedly given (see note p. 99) to afford the means of correcting the mortality of districts and sub-districts, but if the mortality tables for these sub-districts are not themselves required the details of such deaths would be also unnecessary.

"The next item is that of 'deaths at different ages in districts,' but if the deaths themselves for districts are unnecessary the discrimination at different ages must *à fortiori* be useless. The data of population for different ages must be still more doubtful than the data of total population. And, unless the districts are grouped in some way, there is no general utility in the facts, even if they could be stated.

"The next item of deaths from different causes in each of the registration counties is objected to because the counties are apparently, for such a purpose, too small to afford useful comparisons, at any rate for many diseases. The numbers of many diseases are often far too small to afford any basis for an average, and this is especially the case as regards the second part of the table, p. 172 *et seq.*, where the diseases are far more detailed than in the first tables. If the tables were accompanied by any study showing that there is a general order in the proportion of deaths from particular diseases, and suggesting the existence of common or divergent conditions in the counties, it might be argued they were of use; but I do not observe that they are used in this way. Dr. Farr, in the appendix, p. 240, shows the deaths from scarlet fever alone for a series of years by counties. and if there is any use in such detail at all, it would probably be enough to give it for one or two great diseases only, which would occupy much less space.

"The last item of 'deaths from several causes by districts' is, *à fortiori*, more objectionable than the similar table for counties, though the table is happily more condensed in its classification of diseases. The addition of the number of inquests held does not seem a detail justifying a new table.

"Unless, therefore, good reason can be shown for giving all this detailed information, I should conclude that the above 138 pages of the appendix, besides the three pages of the report itself, are superfluous, say 140 pages in all.

"In any case, it may be added, even if considerable subdivision should be proved to be useful, the question would arise whether the divisions which are found convenient for registration purposes should be slavishly followed. It may often be convenient to establish registration offices where there is a small population, so that the area and amount of population in the different districts will vary greatly, and it ought to be considered, when statistics are in question, whether for publication a more convenient grouping would not be possible. Some common principles should be laid down as to the minimum size and population of a sub-division, and if this were tried it is believed much fewer lines and pages than are now employed would be sufficient for all practical purposes.

"(2.) In the two annual reports for Scotland, of which I have before me the Twenty-first Annual Report, and the Eighteenth *Detailed* Annual Report, there are altogether 393 pages. Of these the *Detailed* Annual Report is the principal one, and it is difficult to understand the reason of the other report at all, as its tables and information are repeated in the detailed report. It contains a special vaccination report, but the substance of this appears in the detailed report. The suppression of this report would save 86 pages, besides binding, &c. As an instance of the repetition of tables, Tables XIX and XX, pp. 27 and 28 of the Annual Report may be compared with Tables XXXV and XXXVI, p. xxxviii. of the Detailed Annual Report, and so of others.

“Coming to the Detailed Annual Report, I have to refer to the following pages as *primâ facie* unnecessary :—

Number of Pages.		
22	Details of births, deaths, and marriages, by districts....	pp. 2— 23
12	,, causes of death in counties	,, 48— 59
6	,, ,, large towns	,, 66— 71
26	Details for each district of small town districts, mainland rural, and insular rural............................	,, 72— 97
136	Details of causes of death at different periods of life in town districts, &c.	,, 110—245
202		

“As to the first two of these items, the objections stated in reference to the English report are again applicable, *mutatis mutandis;* they also apply to the third item, viz., the causes of death in large towns, which do not include the principal towns, the similar tables as to these towns not being here objected to. *A fortiori* these objections are applicable to the next item, giving the details of causes of death for small town districts, &c. The last item of all objected to—details of causes of death from all causes at different periods of life—is an attempt to give for different districts of Scotland what is not attempted at all in the English report. The English report deals with deaths at different ages in different districts, these districts being, perhaps, too small, but it does not attempt to discriminate the causes of death at different ages, except for the whole of England. If what is here done for Scotland was done for England, the bulk of the volumes would be immensely increased.

“(3.) In the Irish Report, extending to 145 pages, there are the following details which seem *primâ facie* unnecessary :—

Number of Pages.		
8	Details of marriages in superintendent registrar's districts	pp. 36—43
4	Details of marriages, births, and deaths in superintendent registrar's districts..	,, 48—51
19	Births and deaths, registrar's districts	,, 54—72
8	Births in four quarters in superintendent registrar's districts	,, 74—81
8	Deaths in superintendent registrar's districts	,, 84—91
6	Deaths at different ages in superintendent registrar's districts	,, 94—99
53		

“The Irish report appears to go much less into detail than that for Scotland, but the above seem liable to the objections already stated.

“We come then to the weekly, quarterly, and other publications for each country, beginning with those for England. These are mostly ephemeral in their nature. Of these the weekly return of births and deaths in London and other large towns is well known, and besides being only a few pages, seems to call for little remark, except, perhaps, that two pages are occupied by Table 6, which gives the deaths from various causes weekly in sub-districts in London; perhaps it would be fair to inquire whether such detail is absolutely necessary—whether a few lines for the larger divisions of London would not serve sufficiently all practical purposes. The publication being a weekly one, the suppression of these two pages would save 104 pages per annum.

"The next to notice are the quarterly returns of the registrar-general of England, extending to about 90 pages each. Here again the objection to the minute details by sub-districts raised with reference to the annual report, would apply still more strongly, the publication being itself ephemeral. The omission of the pages relating to these sub-districts (pp. 14—64, second quarter 1876), would save 51 pages per quarter, or 204 pages annually.

"In Scotland there is a monthly and a quarterly return. The monthly contains four pages (pp. 44—47) devoted to the details of death from all causes at various periods of life in four large towns. It will be observed that the causes of death are given, first according to seventeen classes, occupying about a page, and then an extremely minute subdivision is given, occupying 3 pages These 3 pages per month, if omitted, would give a saving of 36 pages annually. As an extreme illustration of the waste to which this detail leads, it may be mentioned that in the quarterly report for September, 1876, one of the districts, Hume, has not a birth, marriage, or death entered opposite to it—a manifest proof of the extreme smallness of the district. There are many other instances of the entries being extremely rare.

"The quarterly return again, besides a summary of births, deaths, and marriages by groups of districts, divisions and counties, contains the details for registration districts, the latter extending to 27 pages (pp. 10—36 of Quarterly Report for June, 1875). The omission of these 27 pages once a quarter would make 108 pages yearly. In addition 6 pages (39—44) are occupied by a meteorological report and tables, as to which there might be room for inquiry, the whole subject of meteorology in statistical publications being most difficult. All that is noticed here at present is that the Scotch meteorological observations are more voluminous than those of England.

"In the quarterly report for Ireland, which seems to follow closely the English model, pp. 66—83, or 16 pages each quarter, giving details of births and deaths by districts, seem objectionable for reasons similar to those stated respecting England and Scotland, total 64 pages.

"And apart from these criticisms on the weekly, monthly, and quarterly summaries in themselves, it may be pointed out that the summaries of the quarterly reports for England are reprinted, pp. xxx to xlviii of the annual report, an apparently unnecessary reprint of 19 pages. Six pages of the report are also a reprint of the annual summary for London and large towns, but this annual summary itself seems objectionable, and is referred to presently.

"On the three annual publications, exclusive of the annual reports, which are—

Number of Pages.	
6	Tables of the marriages, births, and deaths in England (1875, C–1457)
44	Annual summary of births, deaths, &c., in London (1875)
20	General abstract of marriages, &c., in Ireland (1875)
70	

it is not proposed to offer any observations, except that they are presumably issued only in anticipation of the annual report in each case, and it ought to be seen (1) what plea of urgency there is to justify the anticipation of that report at all, and (2) whether their preparation does not itself delay the annual report. If they can be suppressed altogether there would be an obvious saving, and for convenience of reference there ought to be no information in them which is not in the annual report.

"Altogether it is suggested that there are over 1,000 pages of superfluous printed matter in these population statistics, viz.:—

English annual report	pp.	136
Scotch ,,	,,	86
,, detailed annual report	,,	202
Irish ,,	,,	53
English weekly return	,,	104
,, quarterly ,,	,,	204
Scotch monthly ,,	,,	36
,, quarterly ,,	,,	108
Irish quarterly ,,	,,	64
Reprint of quarterly summaries in annual report	,,	19
Annuals, exclusive of annual reports	,,	70
Total	,,	1,082

"We come then to the question of the want of harmony in compiling the statistics. Thus the division of deaths at different ages are more minute in Scotland than in England and Ireland, being in five-yearly periods from 10 upwards, and dividing children under one year into those under three, six, and twelve months, while in England there is only the distinction of under one year for young children, and after the age of 25, in some of the tables at least, the divisions are every ten years only. On the other hand, the particulars as to marriages in England are far more minute than in Scotland, specifying the description of church where celebrated, &c. The greatest difference, however, is in the specification of causes of disease, of which an idea can only be given by placing side by side the specifications for each country, whether summary or detailed. They disagree so widely that anything more than the most general comparison of disease in the three countries is impossible, even if that comparison is possible. The following are these specifications:—

CLASSIFICATION OF DEATHS IN ENGLAND, SCOTLAND AND IRELAND.

ENGLAND AND IRELAND.

(*Summary.*)

Class.	CAUSES OF DEATH.
	ALL CAUSES
	SPECIFIED CAUSES
	(CLASSES.)
I.	ZYMOTIC DISEASES
II.	CONSTITUTIONAL DISEASES
III.	LOCAL DISEASES
IV.	DEVELOPMENTAL DISEASES
V.	VIOLENT DEATHS
	(ORDERS.)
I.	1. MIASMATIC DISEASES
	2. ENTHETIC „
	3. DIETIC „
	4. PARASITIC „
II.	1. DIATHETIC „
	2. TUBERCULAR „
III.	1. DISEASES OF NERVOUS SYSTEM
	2. „ ORGANS OF CIRCULATION
	3. „ RESPIRATORY ORGANS
	4. „ DIGESTIVE ORGANS
	5. „ URINARY ORGANS
	6. „ ORGANS OF GENERATION
	7. „ ORGANS OF LOCOMOTION
	8. „ INTEGUMENTARY SYSTEM
IV.	1. CONGENITAL MALFORMATIONS AND DEV. DISEASES OF CHILDREN
	2. DEV. DISEASES, ADULTS
	3. „ OLD PEOPLE
	4. DISEASES OF NUTRITION
V.	1 ACCIDENT OR NEGLIGENCE
	*
	3. HOMICIDE
	4. SUICIDE
	5. EXECUTION
	VIOLENT DEATHS NOT CLASSED
	SUDDEN DEATHS, CAUSE UNASCERTAINED
	CAUSES NOT SPECIFIED

(*Details.*)

Class.	CAUSES OF DEATH.
I.	ORDER I.
	1 Small Pox
	2 Measles
	3 Scarlet Fever (Scarlatina)
	4 Diphtheria
	5 Quinsy
	6 Croup
	7 Whooping-cough
	8 { Typhus Fever Enteric or Typhoid Fever Simple Continued „
	9 Erysipelas
	10 Puerperal Fever (Metria)
	11 Carbuncle
	12 Influenza
	13 Dysentery
	14 Diarrhœa
	15 Cholera
	16 Ague
	17 Remittent Fever
	18 Rheumatism
	19 *Other Zymotic Diseases*

(*Details*—contd.)

Class.	CAUSES OF DEATH.
I. (*contd*)	ORDER 2.
	1 Syphilis
	2 Stricture of Urethra
	3 Hydrophobia
	4 Glanders
	ORDER 3.
	1 Privation
	2 Want of Breast-milk
	3 Purpura and Scurvy
	4 Alcoholism { *a* Del. Trem. *b* Intemp.
	ORDER 4.
	1 Thrush
	2 Worms, &c.
II.	ORDER 1.
	1 Gout
	2 Dropsy
	3 Cancer
	4 Cancrum Oris (Noma)
	5 Mortification
	ORDER 2.
	1 Scrofula
	2 Tabes Mesenterica
	3 Phthisis
	4 Hydrocephalus
III.	ORDER 1.
	1 Cephalitis
	2 Apoplexy
	3 Paralysis
	4 Insanity
	5 Chorea
	6 Epilepsy
	7 Convulsions
	8 *Brain Diseases, &c.*
	ORDER 2.
	1 Pericarditis
	2 Aneurism
	3 *Heart Disease, &c.*
	1 Larnygitis
	2 Bronchitis
	3 Pleurisy
	4 Pneumonia
	5 Asthma
	6 *Lung Disease, &c.*
	ORDER 4.
	1 Gastritis
	2 Enteritis
	3 Peritonitis
	4 Ascites
	5 Ulceration of Intestines
	6 Hernia
	7 Ileus
	8 Intussusception
	9 Stricture of Intestines
	10 Fistula
	11 *Stomach Disease, &c.*
	12 *Pancreas Disease, &c.*
	13 Hepatitis
	14 Jaundice
	15 *Liver Disease, &c.*
	16 *Spleen Disease, &c.*

(*Details*—contd.)

Class.	CAUSES OF DEATH.
III. (*contd*)	ORDER 5.
	1 Nephritis
	2 Ischuria
	3 Bright's Disease (Neph)
	4 Diabetes
	5 Calculus (Stone)
	6 Cystitis
	7 *Kidney Disease, &c.*
	ORDER 6.
	1 Ovarian Dropsy
	2 *Uterus Disease, &c.*
	ORDER 7.
	1 Synovitis (Arthritis)
	2 *Joint Disease, &c.*
	ORDER 8.
	1 Phlegmon
	2 Ulcer
	3 *Skin Disease, &c.*
IV.	ORDER 1.
	1 Premature Birth
	2 Cyanosis
	3 Spina Bifida
	4 Other Malformations
	5 Teething
	ORDER 2.
	1 Paramenia
	2 Childbirth (*see* Metria)
	ORDER 3.
	1 Old Age
	ORDER 4.
	1 Atrophy and Debility
V.	ORDER 1.
	(ACCIDENT OR NEGLIGENCE.)
	1 Fractures and Contusions
	2 Gunshot Wounds
	3 Cut, Stab
	4 Burns and Scalds
	5 Poison
	6 Drowning
	7 Suffocation
	8 Otherwise
	ORDER 3.
	(HOMICIDE.)
	1 Murder and Manslaughter
	ORDER 4.
	(SUICIDE.)
	1 Gunshot Wounds
	2 Cut, Stab
	3 Poison
	4 Drowning
	5 Hanging
	6 Otherwise
	ORDER 5.
	(EXECUTION.)
	1 Hanging
	Other Violent Deaths (not classed)
	Sudden Deaths (causes unascertained)
	Causes not specified or ill-defined

CLASSIFICATION OF DEATHS IN ENGLAND, SCOTLAND AND IRELAND—*contd.*

SCOTLAND.

(*Summary.*)

DISEASES.	
ALL CAUSES	
SPECIFIED CAUSES	
Class.	
I.	Zymotic Class
II.	Diseases of Uncert. Seat
III.	Tubercular Class
IV.	Brain and Nervous System
V.	Organs of Circulation
VI.	Respiratory Organs
VII.	Organs of Digestion
VIII.	Urinary Organs
IX.	Organs of Generation
X.	Organs of Locomotion
XI.	Skin, &c.
XII	Malformation
XIII.	Premature Debility
XIV.	Atrophy
XV.	Age
XVI	Sudden Deaths
XVII.	Violent ,,

(*Details.*)

Class.	DISEASES.
I.	Small-pox
	Measles
	Scarlatina
	Diphtheria
	Hooping-cough
	Croup
	Thrush
	Diarrhœa
	Dysentery
	Cholera
	Influenza
	Purpura
	Ague
	Worms
	Typhus
	Enteric Fever
	Relapsing Fever
	Simple Continued Fever
	Infantile Remittent
	Metria
	Rheumatic Fever
	Erysipelas
	Pyæmia
	Syphilis

(*Details*—contd.)

Class.	DISEASES.
I.	Noma
(*contd*)	Hydrophobia
II.	Hæmorrhage
	Dropsy
	Abscess
	Ulcer
	Fistula
	Mortification
	Cancer
	Gout
III.	Scrofula
	Tabes Mesenterica
	Phthisis
	Hydrocephalus
IV.	Cephalitis
	Apoplexy
	Paralysis
	Delirium Tremens
	Chorea
	Epilepsy
	Tetanus
	Insanity
	Convulsions
	Brain Disease
V.	Pericarditis
	Aneurism
	Heart Disease
VI.	Laryngitis
	Bronchitis
	Pleurisy
	Pneumonia
	Asthma
	Lung Disease
VII.	Teething
	Quinsy
	Gastritis
	Enteritis
	Peritonitis
	Ascites
	Ulceration of Intestines
	Hernia
	Ileus
	Intussusception

(*Details*—contd.)

Class.	DISEASES.
VII.	Stricture of Intestines
(*contd*)	Stomach Disease
	Pancreas ,,
	Hepatitis
	Jaundice
	Liver Disease
	Spleen Disease
VIII.	Nephritis
	Nephria
	Addison's Disease
	Ischuria
	Diabetes
	Stone
	Cystitis
	Stricture of Urethra
	Kidney Disease
IX.	Paramenia
	Ovarian Dropsy
	Childbirth
	Organs of Generation
X.	Bone Disease
	Rheumatism
	Joint Disease
XI.	Carbuncle
	Phlegmon
	Skin Disease
XVII.	Intemperance
	Privation
	Want of Breast Milk
	Neglect
	Cold
	Poison
	Poisoned Wounds
	Burns and Scalds
	Hanging, etc.
	Suffocation
	Drowning
	Fracture and Contusions
	Gunshot Wounds
	Cuts and Stabs
	Other Violent Causes
	Not Specified

"In addition, the English and Irish reports contain tables specifying the diseases, or some of them, still more minutely. These two special lists seem both to be taken from the detailed list of diseases of the Royal College of Physicians, but the circumstance that in practice the use made in the two countries of that list is so different, and differs for different years in the same country, owing to the small number or total absence of many diseases appears worth notice.

ENGLISH.

Class I.

I.—1	Small-pox { Vaccinated Not Vaccinated
	Chicken-pox
4	Cynanche Maligna
8	Relapsing Fever
9	Erysipelas after Vaccination
18	Rheumatism of Heart or Pericardium
19	Miliaria
	Mumps
	Erythema
	Yellow Fever
II.—1	Gonorrhœa
III.—2	Inanition of Infancy
3	Rickets
	Bronchocele
	Cretinism
IV.—2	Porrigo
	Scabies
	Tape Worm
	Hydatids

Class II.

I.—1	Anæmia
	Hydropericardium
3	Melanosis
	Fungus Hæmatodes
	Sweep's Cancer
	Lupus
	Polypus
5	Gangræna senilis
	Bedsore
II.—1	Adenitis
	White Swelling
	Psoas Abscess
2	Tubercular Peritonitis
3	Hæmoptysis
	Pneumothorax

Class III.

I.—1	Myelitis
3	Shaking Palsy
4	Melancholy
8	Neuralgia
	Spinal Marrow Disease
	Necrencephalus (Softening of the Brain)
	Ophthalmia
	Otitis
	Idiopathic Tetanus
	Amaurosis
	Ottorrhœa
	Catalepsy
II.—1	Carditis
	Endocarditis
3	Angina Pectoris
	Syncope
	Hypertrophy of Heart
	Phlebitis
	Piles
	Embolism
	Varicose Veins

Class III—*contd.*

III.—1	Œdema Glottidis
	Laryngismus Stridulus
3	Empyema
5	Emphysema
6	Grinder's Asthma
	Epistaxis
	Congestion of Lungs
	Pulmonary Apoplexy
IV.—2	Stomatitis
	Glossitis
	Pharyngitis
	Œsophagitis
5	Perforation of Intestines
6	Congenital Hernia
	Femoral Hernia
	Inguinal "
	Scrotal "
	Umbilical Hernia
	Hernia (Operation registered)
7	Obstruction of Bowels
11	Dyspepsia
	Pyrosis
	Hæmatemesis (Vomiting of Blood)
	Melæna
14	Gallstone
15	Cirrhosis
V.—5	Gravel
	Stone (Operation registered)
6	Catarrh of Bladder
7	Prostatic Disease
	Bladder "
	Diuresis
	Hæmaturia
	Uræmia
	Addison's Disease
	Dysuria
VI.—2	Orchitis
	Hydrocele
	Disease or Abscess of Perinæum
VII.—1	Ostitis
	Periostitis
2	Exostosis
	Mollities Ossium
	Caries
	Necrosis
VIII.—1	Whitlow
	Pyæmia
3	Urticaria
	Eczema
	Ecthyma
	Herpes
	Pemphigus
	Impetigo
	Psoriasis
	Lepra
	Elephantiasis
	Rupia

Class IV.

I.—4	Anus imperforatus
	Cleft Palate

NOT SPECIFIED

	Abscess, Tumour

IRISH.

Class I.	
I.—4	Cynanche Maligna
18	Rheumatism of Heart or Pericardium
19	Mumps
	Erythema
	Pyæmia
III.—2	Inanition of Infancy
3	Rickets
	Bronchocele
Class II.	
I.—2	Anæmia
	Hydropericardium
3	Fungus Hæmatodes
	Sweep's Cancer
	Lupus
	Polypus
5	Gangræna senilis
	Bedsore
II.—1	White Swelling
	Psoas Abscess
3	Hæmoptysis
	Pneumothorax
Class III.	
I.—1	Myelitis
8	Neuralgia
	Spinal Marrow Disease
	Necrencephalus
Class III—*contd.*	
	Otitis
	Idiopathic Tetanus
II.—1	Carditis
	Endocarditis
3	Angina Pectoris
	Syncope
	Hypertrophy
	Phlebitis
	Embolism
III.—1	Œdema Glottidis
	Laryngismus Stridulus
3	Empyema
	Hydrothorax
5	Emphysema
6	Epistaxis
	Congestion of Lungs
	Pulmonary Apoplexy
IV.—6	Femoral Hernia
	Inguinal ,,
	Scrotal ,,
	Umbilical ,,
7	Obstruction of Bowels
11	Dyspepsia
	Pyrosis
	Hæmatemesis
	Melæna
14	Gallstone
15	Cirrhosis
16	Leucocythæmia
Class III.—*contd.*	
V.—5	Gravel
6	Catarrh of Bladder
7	Prostatic Disease
	Bladder ,,
	Hæmaturia
	Uræmia
VI.—2	Orchitis
	Hydrocele
	Pelvic Abscess
VII.—1	Periostitis
2	Caries
	Necrosis
VIII.—3	Urticaria
	Eczema
	Ecthyma
	Herpes
	Pemphigus
	Icthyosis
	Psoriasis
	Shingles
	Rupia
Class IV.	
I.—4	Anus Imperforatus
NOT SPECIFIED.	
	Abscess, Tumour

"Whatever detailed list for England and Ireland is used, there will be a difficulty in making comparisons with Scotland, and the summaries are not at all available. Possibly medical men may be able to overcome the verbal differences of classification, but to any but specialists the difficulties seem insuperable. Besides, therefore, the superfluous matter in these reports, they are not available for purposes of intercomparison as they ought to be.

"In the appendix to the English report, issue for 1873, there has also been introduced (pp. 248 *et seq.*) a *new* classification of disease 'according to the nomenclature drawn up by a committee appointed by the Royal College of Physicians of London.' This seems to be a more authoritative qualification than the others, but it is extremely detailed, and the use of it ought not to be allowed to creep in gradually. How far it should be adopted should be a matter for preliminary inquiry.

"*Supplementary Population Statistics.*

"Though they do not come within the registrar-general's group, there are certain other population and health statistics which it may be convenient to take at this stage. These are—

"(1.) Reports of medical officer of Privy Council and local government board.
"(2.) Army medical department report.
"(3.) Statistical report on health of navy.
"(4.) Twentieth report of customs (as far as relates to health of officers).
"(5.) Report of convict prisons (as to health).
"(6.) Report of metropolitan police (as to health).
"(7.) Report of board of superintendence of Dublin hospitals.

"All these reports contain health statistics, and use classifications of disease which it seems useful to compare with the above reports of the registrars. The number of pages comprised is 1,454, of which 622 are statistical.

"Of these, the first may be passed over as dealing specially with little else than vaccination. Is there any necessity, however, to give the details (pp. 17—31) of the number of vaccinations, &c., in each union, so as to show percentage of children not finally accounted for; or would not this percentage be sufficient without all the other details?

"The next report is that of the army medical department (1873), on which it is to be observed that, in addition to special reports on the health of the troops in different commands in which a summary of diseases like the following is used:—

Orders.	Diseases.	Orders.	Diseases.
	I. *General Diseases.*		II. *Local Diseases*—contd.
1	Febrile group		Diseases of the—
2	Constitutional group	13	Cellular tissue
		14	Cutaneous system
	II. *Local Diseases.*		
	Diseases of the—		III. *Conditions, &c.*
1	Nervous system		Debility
2	Eye		IV. *Poisons.*
3	Ear		
4	Nose		V. *Injuries.*
5	Circulatory system	2	Accidental
6	Absorbent ,,	3	Homicidal
7	Ductless glands	4	Self inflicted
8	Respiratory system		
9	Digestive ,,		VI. *Surgical Operations.*
10	Urinary ,,	—	No appreciable disease
11	Generative ,,		
12	Organs of locomotion		Total

"There are appendices (pp. 412—424 and 433—468), in which an extremely minute classification of diseases is followed, differing as the above summary does from that of the registrar-general. (See below, pp. 16—17.) In all, 47 pages of doubtful matter, even if there was agreement with the registrar-general. There are also 33 pages of meteorological tables, pp. 476—509, which also appear of doubtful utility. If such observations are good at all, their proper place seems to be the registrar-general's report, where the meteorological comparisons can be applied more generally.*

"The health of the navy report (1874) contains numerous statistical tables as to the health of the several stations of the navy, the details of disease or injury and invaliding from all causes being stated for each *ship*, and occupying the following pages, exclusive of the summaries for the station:—

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* In this instance there have been great improvements introduced, apparently in 1874, and most of the objections here raised would not apply at the present time, unless the old evils are being repeated. The above summary classification of disease is still used.

			Number of Pages.
Home station	pp.	32— 39	8*
Mediterranean	,,	69— 75	7
North American and West Indian	,,	106—114	9
S. E. America	,,	135—137	3
Pacific	,,	161—165	5
West Coast of Africa	,,	204—211	8
East India	,,	247—253	7
China	,,	286—295	10
Australian	,,	318—323	6
Irregular force	,,	348—355	8
			71
* Add for double pages			8
Total			79

"In addition, it may be suggested that many of the details as to the dockyards, &c., in the appendix of 180 pages are too voluminous. In these navy reports there is likewise a classification of disease, which differs from that of the registrar-general and of the army medical department; so that a comparison between the health of the army and navy, or of both with the civil population, whether of England or Scotland, seems impossible.

"The report on health in the customs' report occupies pp. 136—148. A few pages might be saved by cutting out the statement of diseases for each quarter, while the classification of disease appears again to be different from any of the preceding. (See below, pp. 16 and 17.)

"In the report on convict prisons (1874) there is the utmost detail of disease for each prison, with a new classification of disease (see below, pp. 16 and 17). The following might be reduced: pp. 33—36; 93—97; 154—157; 177—180; 232—239; 277—280; 314—317; 385—388; 447—450; 499—502; 521—524; 558—561; in all about 53 pages of doubtful matter.

"In the metropolitan police report (1875) there are no less than 48 pages of tabular matter relating to the diseases of the force in each month (pp. 40—87), and with still another classification of disease (see below, pp. 16 and 17). These tables are also for the most part full of blanks, *i.e.* with nil entries opposite the various headings.

"In the report on Dublin hospitals (1874-75), which is made under a Dublin Hospitals Regulation Act, there are 12 pages (pp. 14—25), occupied with lists of number of patients treated and number died in each hospital, with an *alphabetical* classification of disease, unlike that of any of the other classifications. Say one-half of the above space occupied with lists could be saved.

"In all, in these various health and population reports, in addition to those belonging to the registrar-general, there are apparently about 237 pages of dubious matter which might be either suppressed or greatly curtailed. It will be necessary to refer to one or two of those reports subsequently in another connection, but this is the matter connected with health and population alone.

"The following will show what are the different lists of diseases which have been referred to, excepting the alphabetical classification in the Dublin hospitals report, and the differences between themselves and those on pp. 12 and 13:—

Classifications of Disease in the Army Medical Report, Health of Navy

ARMY MEDICAL.	NAVY.	CUSTOMS.
Diseases.	——	——
I. *General Diseases.* 1. Febrile: Measles Typhus Fever Simple Continued Fever Febricula Ague Remittent Fever Erysipelas 2. Constitutional: Acute Rheumatism Muscular ,, Chronic ,, Gout Primary Syphilis Secondary ,, Scrofula Phthisis Pulmonalis Hæmoptysis (Tub.) Diabetes Purpura Anæmia II. *Local Diseases.* 1. Diseases of the Nervous System: Apoplexy Heat Apoplexy Paralysis Epilepsy Neuralgia Mania 2. Diseases of the Eye: Conjunctivitis Iritis Hemeralopia Tarsal Ophthalmia 5. Circulatory System: Valve Disease of Heart Hypertrophy ,, 6. Absorbent System: Inflammation of Glands Suppuration 8. Respiratory System: Bronchitis Pneumonia Pleurisy Laryngeal Catarrh 9. Digestive System: Gumboil Tonsillitis Dyspepsia Vomiting Dysentery Hernia Diarrhœa Colic Constipation Fistula in Ano Hæmorrhoids Tænia Solium Ascaris Lumbricoides Hepatitis Abscess of Liver Jaundice	**I. General Diseases, Section A.:** Small-pox Vaccinia Varicella Measles Scarlet Fever Dengue Typhus Fever Enteric Fever Simple Continued Fever Yellow Fever Ague Remittent Fever Cholera Cholera Simplex Mumps Influenza Erysipelas Hooping Cough Pyæmia **II. General Diseases, Section B.:** Rheumatism Syphilis { Primary, Secondary Phthisis Pulmonalis Gout Scrofula Anæmia, Purpura, &c. Dropsy Other Diseases **III. Diseases of the Nervous System and Organs of the Special Senses:** Apoplexy Sunstroke Paralysis Vertigo Epilepsy Neuralgia Insanity Other Diseases of the Brain Other Diseases of the Nervous System Diseases of the Eye Diseases of the Lachrymal Apparatus, Eyelids, &c. Diseases of the Ear Diseases of the Nose **IV. Diseases of the Circulatory System:** Diseases of the Heart { Functional, Organic Pericarditis Aneurism Varicose Veins Other Diseases **V. and VI. Diseases of the Absorbent System and Ductless Glands:** Bubo (*Symp.*) Other Diseases **VII. Diseases of the Respiratory System:** Diseases of the Larynx Catarrh Bronchitis Asthma	General Diseases:— A. { Enteric Fever Febricula Ague Erysipelas B. { Rheumatism Lumbago Gout Syphilis Phthisis Dropsy Local Diseases:— Of the Nervous System. { Paralysis Epilepsy Vertigo Tremor Neuralgia Headache Pleurodynia Sciatica Of the Eye. { Ophthalmia Otitis Of the Organs of Circulation. { Disease of Heart Palpitation Varix Of the Respiratory Organs. { Sore Throat Catarrh Bronchitis Asthma Pneumonia Pleurisy Of the Digestive Organs. { Quinsy Gastritis Enteritis Dysentery Melæna Hernia Diarrhœa Colic Constipation Fistula Hæmorrhoids Congestion of Liver Jaundice Of the Urinary, &c., Organs. { Nephritis Ur. Calculus Strictures Gonorrhœa Orchitis Bone. Periostitis

STATISTICS, HEALTH OF CUSTOMS REPORT, PRISONS, and METROPOLITAN POLICE REPORT.

PRISONS.

Diseases.

GENERAL DISEASES. A.

- Small-pox
- Typhus Fever
- Enteric Fever
- Febricula
- Catarrh
- Ague
- Malignant Cholera
  - (*a*) Choleraic Diarrhœa
- Influenza
- Erysipelas
- Pyæmia
- Pleurodynia
- Phlegmon

GENERAL DISEASES. B.

- Acute Rheumatism
- Sub-acute „
- Synovial „
- Muscular „
- Acute Gout
- Chronic „
- Chronic-osteo-arthritis
- Syphilis, primary
- „ secondary
- Cancer
- Syphilitic Tumours
- Lumbago
- Non-malignant Tumours
- Lupus
- Scrofula
- Phthisis Pulmonalis
- „ Hæmoptysis
- Tubercular Peritonitis
- Diabetes
- Purpura
- Scurvy
- Anæmia
- Chlorosis
- General Dropsy
- Scrofulous Abscess
- Anasarca

LOCAL DISEASES.

Diseases of the Brain and its Membranes.

- Encephalitis
- Meningitis
- Softening (of the Brain)
- Abscess „
- Apoplexy
- Tumour of Brain

Diseases of the Spinal Cord.

- Curvature of Spine

Diseases of the Nerves.

- Hemiplegia
- Paraplegia
- Locomotor Ataxy
- Local Paralysis

Functional Diseases of the Nervous System.

- Epilepsy
- Chorea
- Hysteria
- Neuralgia
- Cephalalgia

Diseases—*contd.*

Disorders of the Intellect.

- Mania
- Melancholia
- Dementia
- Imbecility
- Observation as to state of Mind

Diseases of the Eye.

- Ophthalmia, acute
- „ chronic
- Ulcer of Cornea
- Iritis
- Wounds of Cornea
- Amaurosis
- Glaucoma
- Other Diseases of the Eye and Eyelids

Diseases of the Ear.

Diseases of the Nose.

- Epistaxis
- Polypus Nasi

DISEASES OF THE CIRCULATORY SYSTEM.

Diseases of the Heart and its Membranes.

- Pericarditis
- Endocarditis
- Valve-disease
- Hypertrophy
- Palpitation and irregularity of the action of the Heart
- Calcareous degeneration of the Aorta
- Vertigo

Diseases of Blood Vessels.

- Aneurism of the Aorta
- „ „ Radial Artery
- Varicose Veins

DISEASES OF THE RESPIRATORY SYSTEM.

- Laryngeal Catarrh
- Laryngitis
- Bronchitis, acute
- „ chronic
- Asthma
- Pneumonia
- Congestion of Lungs
- Emphysema
- Pleurisy

DISEASES OF THE DIGESTIVE SYSTEM.

- Quinsy
- Tonsillitis
- Gastritis
- Hæmatemesis
- Dyspepsia
- Enteritis
- Dysentery
- Hernia, reducible
- „ strangulated

METROPOLITAN POLICE.*

———

I. GENERAL DISEASES.

Sub-division A.:

- Small-pox
- Measles
- Scarlet Fever
- Typhus „
- Enteric „
- Simple continued Fever
- Febricula
- Ague
- Remittent Fever
- Simple Cholera
- Malignant Cholera
- Influenza
- Erysipelas
- Bilious Fever
- Hooping Cough
- Parotides

Sub-division B.:

- Gonorrhœal Rheumatism
- Acute Rheumatism
- Chronic „
- Muscular „
- Gout
- Primary Syphilis
- Secondary „
- Cancer
- Scrofula
- Phthisis Pulmonalis
- Hæmoptysis (Tubr.)
- Purpura
- Scurvy
- Chronic Arthritis (of Knee)

II. LOCAL DISEASES.

1. Nervous System:
   - Cerebritis
   - Softening of Brain
   - Apoplexy
   - Paralysis
   - Epilepsy
   - Neuralgia
   - Dementia
   - Hypochondriasis
   - Nervousness
   - Sunstroke
   - Vertigo
   - Weak Intellect
2. Eye:
   - Conjunctivitis
   - Defective Vision
   - Inflamm. of Lachrymal Duct.
   - Ulceration of Cornea

———

3. Ear:
   - Deafness
   - Abscess
4. Nose:
   - Coryza
5. Circulatory System:
   - Valve Disease of Heart
   - Varicose Veins
   - Fainting
   - Palpitation of Heart
   - Angina Pectoris
   - Fatty Disease of Heart
6. Absorbent:
   - Inflam. of Glands
   - Inflammation of Lymphatics
   - Enlarged Glands
   - Abscess of Glands
7. D. Glands
   - Goitre
8. Respiratory System:
   - Bronchitis (including cases returned as "Tussis")
   - Asthma
   - Pneumonia
   - Pleurisy
   - Laryngitis
   - Pain in Chest
9. Digestive
   - Tonsillitis
   - Gastritis
   - Dyspepsia
   - Enteritis
   - Dysentery
   - Diarrhœa
   - Hernia
   - Colic
   - Entozoa
   - Constipation
   - Fistula in Ano
   - Hæmorrhoids
   - Jaundice
   - Ascites
   - Congestion of Liver
   - Gumboil
   - Toothache
   - Swelled Face
10. Urinary:
    - Bright's Disease
    - Nephritis
    - Diabetes

Classifications of Disease in the Army Medical Report, Health of Navy Statistics,

ARMY MEDICAL.	NAVY.	CUSTOMS.	
Diseases.	——	——	
10. Urinary System:	**VII. Diseases of the Respiratory System**—*contd.*	Local Diseases—*contd.*	
Gonorrhœa		Of Skin and Cellular Tissue.	Inflammation
Phimosis, &c.	Pneumonia		Abscess
Bubo	Pleurisy		Urticaria
Epididymitis (Gon.)	Hæmoptysis		Eczema
Stricture of Urethra	Other Diseases of the Lungs		Herpes Zoster
			Ulcer
	VIII. Diseases of the Digestive System:		Whitlow
			Tumour
11. Generative System:	Cynanche		Boil
	Diseases of the Teeth, Gums, &c.		Carbuncle
Hæmatocele	Dyspepsia		
Orchitis	Dysentery		
	Diarrhœa		
	Colic and Constipation		Debility
	Hæmorrhoids		
12. Organs of Locomotion:	Hernia		
	Worms		
Synovitis		Accidental Injuries.	Contusion
Enlarged Bursa	Other Diseases of the Stomach, Intestines, &c.		Sprain
			Wound
	Hepatitis		Fracture
	Jaundice		Burn
13. Diseases of Cellular Tissue:	Other Diseases of the Liver, Spleen, &c.		Frost Bite
Inflammation of Cellular Tissue	**IX. & X. Diseases of the Urinary and Generative Systems:**		
Abscess " "			
	Diseases of the Kidneys		
14. Cutaneous System:	Diseases of the Bladder		
	Gonorrhœa		
Erythema	Epididymitis		
Psoriasis	Stricture		
Eczema	Varicocele		
Sycosis	Orchitis		
Ulcer	Other Diseases of the Organs of Generation		
Boil			
Carbuncle			
Whitlow	**XI. Diseases of the Organs of Locomotion:**		
Warts			
Itch	Diseases of the Bones		
Irritation from Pediculi	Diseases of the Joints		
	Diseases of the Bursæ		
	Diseases of the Muscular System		
III. *Conditions, &c.*	**XII. & XIII. Diseases of the Cellular Tissue and Cutaneous System:**		
General Debility			
	Phlegmon and Abscess		
	Ulcer		
IV. *Poisons.*	Erythema		
	Scabies		
Delirium Tremens	Other Diseases of the Skin		
	Unclassed:		
	Debility		
V. *Injuries.*	Headache		
	Sea Sickness		
2. Accidental:			
Burns and Scalds	**Poisoning:**		
Contusion	Delirium Tremens		
Fracture	Various		
Wounds			
Sprain	**Wounds and Injuries:**		
Dislocation	Wounds, &c.		
Blisters of the Feet	Burns and Scalds		
Foreign Body	Submersion and Drowning		
	Asphyxia		
No appreciable disease	Suicide		
Total	Totals		

HEALTH OF CUSTOMS REPORT, PRISONS, and METROPOLITAN POLICE REPORT—*Contd.*

PRISONS.

Diseases.

DISEASES OF THE DIGESTIVE SYSTEM—*cont.*

Diarrhœa
Constipation
Fistula in Ano
Hæmorrhoids
Hepatitis
Jaundice
Leucocythœmia
Peritonitis
Ascites
Prolapsus Ani
Stomatis
Abscess of Rectum
Tape Worms
Colic

DISEASES OF THE URINARY SYSTEM, &c.

Albuminuria
Nephritis
Hæmaturia
Chronic enlargement of Prostate Gland
Paraphimosis
Bubo
Condyloma
Stricture of Urethra

Diseases of the Male Organs of Generation.

Hydrocele
Varicocele
Hæmatocele
Orchitis
Phymosis

Diseases of the Female Organs of Generation.

Encysted Dropsy of Ovary
Cancer of Uterus
Non-malignant Tumours of Uterus
Amenorrhœa
Dysmenorrhœa
Menorrhagia

Diseases of Female Breast.

Cancer
Non-malignant Tumours

DISEASES OF THE ORGANS OF LOCOMOTION.

Diseases of Bones and Joints.

Periostitis
Abscess of Joints
Acute Synovitis
Chronic ,,
Ulceration of Cartilages
Ankylosis
Necrosis

Diseases of Spine.

Caries and Necrosis
Psoas, Lumbar, and other Abscesses
Angular Deformity
Hip disease
Disease of Pelvis

Diseases—*cont.*

Diseases of Tendons, &c.

Club Foot
Enlargement of Bursæ
Bursal Abscess
Thecal ,,
Bunions

DISEASES OF THE CUTANEOUS SYSTEM.

Scabies
Erythema
Urticaria
Psoriasis (and Lepra), Icthyosis
Eczema
Sycosis
Chilblains
Herpes
Boil
Carbuncle
Ulcer
Whitlow
Abscess of Muscles

Anomalous and Feigned Diseases.

Old Age

Debility

GENERAL AND LOCAL INJURIES.

Burns and Scalds
Contusions
Wounds of Scalp
,, Leg
,, Fingers
,, Foot
,, Toes
,, Knee
,, Arm
,, various
Fracture of Arm
,, Leg
,, Fingers
,, Toes
,, Ribs
,, Skull
,, Patella
Effusion into Pericardium after fracture of Leg

Surgical Operations.

Amputation of Arm
,, Fore Arm
,, Hand
,, Fingers
,, Thigh
,, Leg
,, Foot
Sprains
Other Operations
Corporal Punishment
Malingering

Totals

METROPOLITAN POLICE.*

10. Urinary—*cont.*
Stone in the Bladder
Cystitis
Gonorrhœa
Phimosis, and Paraph.
Epididymitis (Gonorrhœal)
Disease of Kidney
Retention of Urine
Hæmaturia

11. Generative:
Variocele
Hydrocele
Orchitis (not Gonorrhœal)

12. Locomotion:
Ostitis
Caries
Synovitis
Disease of Joint
Disease of Spine
Ganglion
Exfoliation of Bone
Bunion

13. Cell. T.
Inflam. of Cell. Tissue
Abscess ,, ,,
Subcutaneous Tumours

14. Cutaneous:
Eczema
Ulcer
Carbuncle
Boil
Itch
Ingrown Nail
Scabies Syphilitica
Urticaria
Corn
Miliary Eruption
Lichen
Erythema

III. CONDITIONS, &c.

General Debility

IV. POISONS.

Alcoholism
Poisoned Finger

V. INJURIES.

1. On Duty:
Burns and Scalds
Contusion
Concussion of Brain
Fracture
Wounds
Sprain
Hæmorrhage from Urethra, Injury of Perinæum

Bite of Dog

2. Accidental:
Burns and Scalds
Multiple Injury
Asphyxia by Drowning
Contusion
Concussion of Brain
Fracture
Wounds
Sprain
Dislocation
Blisters of the Feet

3. Self-inflicted:

VI. SURGICAL OPERATIONS.

Excision of Tumour

Not yet diagnosed

Total New Cases

Total from last Month

GENERAL TOTAL

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* This list has been extracted from the Report of 1874. That for 1875 differs slightly, but the number of pages occupied is the same. Apparently the names of some diseases are omitted in some months and afterwards reinserted.

"It is unnecessary to argue that these classifications impede the handling of statistics for comparison; even if experts could make something of them by great labour, from their intimate knowledge of what diseases are, no one but an expert can safely touch them at all. It may be said, perhaps, that these last classifications, as being applicable to services, do not relate to statistics which require to be compared with those of the general population, or with each other, but it seems more reasonable that the value in each case will be greatly enhanced by comparison. Nothing can really be known about the health or proportion of deaths in services, or any class of men subject to special conditions, unless by comparison with a more general standard of health and mortality from which it varies, and the differences between classes whose conditions vary from the average in different ways will probably be instructive. The variations noticed, therefore, detract materially in all probability from the usefulness of these statistics. For certain purposes it may, of course, be right and proper to arrange diseases differently, or introduce special sub-divisions when dealing with special classes; but this could probably be done in such a way as not to interfere with the divisions common to all. It seems to be specially unreasonable that such small forces as the Customs and Metropolitan Police should have a classification of disease for themselves, while for such important services as the army and navy the general public interest in the matter is so great as to suggest the absolute necessity of comparison with the health of the civil population.

"THIRD GROUP.—*Education Statistics.*

"In this group we have three annual reports, one for England, Scotland, and Ireland, respectively, all with appendices, the English and Scotch Reports being from the Privy Council. In addition, we have for England the report without appendix, a code of regulations, and a return for Great Britain showing the expenditure from the grant for public education and the results of examination and inspection of grant schools; for Scotland we have also a report without appendix, and a code of regulations, the above return for Great Britain also relating to it, besides a report of the Board of Education of Scotland, and a report of the accountant to the Board of Education. The whole of the printed matter comprises 2,286 pages, including 1,305 pages of statistics.

"Dealing first with the English report by itself (Report for 1875-76), I suggest, as requiring an inquiry into the expediency of their publication, the following pages:

Number of Pages.		
47	Enumeration of districts in which school boards have been formed	pp. 1— 47
13	List of school boards recommended for loans, with accounts minutely stated	" 49— 61
86	Statement of income and expenditure of school boards, in great detail for each	" 62—147
187	List of elementary schools aided from parliamentary grant, in great detail	" 499—685
333		

"The questions raised by these items are partly of non-statistical kind. The table in the first of the above items, for instance, does not claim to be statistical, but it occupies a great deal of space, and might have been far more useful if compressed so as to show in some way the number of school boards to certain areas and masses of population, and the previous proportion of other schools. It seems matter for inquiry whether details of date of election, number of members, names of clerks, and dates of byelaws need be printed. The brief summary, p. 48, is of general interest, but not all the immense detail preceding.

"The second list—that of school boards recommended for loans, with the amounts,—contains a detail which will appear in another way in a more trustworthy shape, viz., the actual amounts borrowed in the accounts of the school boards themselves. The list is also a very curious one in the amount of the loans recommended being specified down to shillings and pence, and even half-pence. The omission of the shillings and pence columns would permit the tables to occupy half the space.

"The next item of the accounts of the school boards is liable to much the same observation as has been passed upon the local taxation accounts (see *ante*, p. 6 *et seq.*). If the unit were large, say like a municipal borough or union, parliament might have a good reason, apart from the statistical uses of such figures, for requiring a summary of the accounts; but the multiplicity of divisions always suggests whether there can be any use in publishing so much,—whether for statistical purposes the divisions should not be grouped, and the details only given for the groups. In any case, the space occupied in the present case (86 pages) could be diminished one-half by omitting the shillings and pence columns. The headings of the income and expenditure are also deficient, like the similar headings in the local taxation accounts, with which they do not harmonise.

"The last item of all also appears to involve more than statistical questions. The voluminous detail occupying those 187 pages is certainly of no use statistically, and it is for those interested to say what general interest is promoted by all those details.

"Coming to the other reports for England, the Appendix, Part V, containing the byelaws of the school boards, extends to 280 pages, and seems to be extremely voluminous, but the question of publishing so much is not a statistical one.

"Next the report without appendix is a mere reprint of so many pages of the report with appendix (28 pages). I do not know whether there has been any resetting, probably not in this case, and it may be said people may want the report without the appendix, while I presume it appears earlier, but if the appendix itself were less voluminous it could be got ready sooner, and there could be less objection to having no separate publication on account of the expense to those who wished the report only.

"The objection to the code of regulations (32 pages) is that it is printed in the report itself (p. 169). In this case the remedy would probably be to maintain the separate publication but not to reprint in the report, though here too the fact of the report being less voluminous would obviate the necessity of separate publications.

"The return of expenditure from grant to public education, &c. (C. 1463 of 1876) contains about 34 pages relating to England, which are reprinted in the appendix to the English report, pp. 234—268. The remainder 35—62, is for Scotland, and will be found in Scotch report, pp. 101—127.

"Altogether for England the superfluous or doubtful printing in this group appears to extend to 333 pages of the report itself, and to 122 pages of the additional publications, including in the latter a duplicate of part of the Scotch report, but not including the print of the byelaws.

"(2.) The reports and other publications for Scotland. In the principal report (1875-76) there is a similar list of school boards to that above referred to in the English report, occupying 29 pages (pp. 3—31). There is also (pp. 226—266) a similar list of grants for education to each school, occupying 41 pages, in all a total of 70 pages, in addition to the statistics of inspection, &c., included in the above return for Great Britain. The report for Scotland without appendix extends to 16 pages, and the code of regulations which is printed both separately and in the report, to 36 pages, in all 52 pages additional.

"Besides these reports for Scotland, however, there is a voluminous report from the Board of Education (Third Annual Report, 1876) which duplicates a great deal of matter in the council report, besides giving many additional details. It contains of this nature:—

	Number of Pages.
1. List of school boards, pp. 3—12	10
2. Additional list of school boards, with particulars of accommodation, exclusive of preliminary summary not here objected to, pp. 16—88	73
3. Statement of operation of compulsory clauses, each school board, besides county summary, pp. 90—107	18
4. List of loans raised by school boards, exclusive of preliminary summary, pp. 112—130	19
5. Details as to examination in specific subjects for each school (besides county summary), pp. 138—187	50
6. Details of parliamentary grants, with shillings and pence columns, &c., exclusive of county summary, pp. 196—243	48
7. Additional tables, ditto, ditto, exclusive of county summary, pp. 248—359	112
	330

"These seven tables, besides being most voluminous, contain in another form the information given at pp. 226—266 of the council report.

"The next of the additional publications for Scotland is a most voluminous report by the Accountant to the Board of Education (Second Annual Report), containing details of receipts and expenditure, which appear still more objectionable than those in the English report, and extend to 85 pages, exclusive of summaries (pp. 1—85). There are here also shillings and pence columns, which double the space occupied, even if the information is really required.

"(3.) The Irish education publications. These are the least voluminous of the three countries, embracing only the report and the appendix (for 1874). The statistical tables in the appendix, however, appear open to all the objections already stated to the Scotch and Irish tables of being detailed for each school, &c., while the items of receipts and expenditure are also given with shillings and pence columns. The pages covered are 250 (pp. 26—275), and for all statistical purposes a county and provincial, or some such summary, occupying a few pages only, would probably be ample. The appendix in 1873 included a great mass of reports from inspectors which are omitted in the 1874 report, and perhaps it is intended still to publish those for 1874, which would help to take from the Irish report the credit of being less voluminous than the others.

"*Additional Education Report.*

"In addition to the above there is a voluminous report by the Science and Art Department to the Committee of Council on Education, with sub-reports by inspectors, the whole extending to 519 pages (Twenty-second Report, Sess. 1875). The tabular and superficially statistical matter is here voluminous, and much of it seems doubtful. I have to mark the following pages:—

	Number of Pages.
1. List of schools examined, pp. 23—49	27
2. Classes, subjects taught, and number of students in each subject in all science schools, pp. 50—97	50
3. Aid given and payments by results in each case, pp. 99—135	37
4. List of science teachers in preceding table, a species of index to it, pp. 136—146	10
5. Similar tables for art instruction, pp. 156—269	114
6. Further art tables of similar kind, pp. 310—364	15
7. Returns of schools of art, being statistics not in tabular form, pp. 278—339	62
Total	315

"In addition, there is a great deal of the printed matter in the appendix not tabular or superficially statistical which appears superfluous, such as lists of donations and articles purchased by museums, &c. The appendix seems compiled on the principle of recording each act of the science and art administration, instead of the information being condensed and put into an intelligible form.

"Altogether, in these education books the following saving might apparently be made, or the greater part of them:—

	Number of Pages.
England	455
Scotland	537
Ireland	250
Science and Art	315
Total	1,557

"These education statistics are also very difficult to harmonise with each other and with the age divisions in the census. In England and Wales, and in Scotland, the number of scholars over 3 and under 14 years of age, and for every intermediate age at intervals of a year, on the school registers of schools inspected by Her Majesty's inspectors, is given, but the sex is not stated. The number of male and female scholars in average attendance and present at examination is stated. In Ireland, the number of boys and girls on the rolls is given, but not the number at each age. There is a classification adopted for the pupils on the rolls for the *last quarter* of the year which appears to be a mixture of age and proficiency. The number of scholars in average daily attendance is given, but the sex is not distinguished. The number of scholars on the school registers in England and Wales, and in Scotland, and the number on the rolls in Ireland are not the same thing.*

"There is also a report on the education of officers by the director-general of military education, but the statistical tables are few, and the subject is a special one.

"FOURTH GROUP.—*Judicial and Prison Statistics.*

"The publications in this group are mainly, though not exclusively, issued by the Home Office, which has likewise other publications under its care. The judicial and prison statistics, however, make so large a group that it is proposed to take them separately from the other Home Office publications.

"The principal publications to be dealt with are the three large volumes of judicial statistics, one for England, Scotland, and Ireland respectively, which include the statistics of crime and prisons as well as of civil proceedings. We have, however, in addition, of purely judicial statistics, a report by the comptroller of bankruptcy, under the Act of 1869; a Return of Plaints in County Courts in England; a Return of County Court Registrar (Fees); and a Return of the Justice of Peace Small Debt Courts (Scotland). And of criminal and prison statistics, we have the Report of the Inspectors of Prisons, Great Britain; Report of the Directors of Convict Prisons, England, &c.; Report on Prisons, Scotland; Report of the Inspectors-General of Prisons in Ireland; Report of the Director of Convict Prisons, Ireland; Report on Military Prisons; Report on Reformatory and Industrial Schools, Great Britain; ditto, ditto, Ireland. In addition, in 1876, there was a Return of Prisons, Great Britain, with one or two minor returns, which may, however, be occasional only, or in substitution for part of the other returns mentioned. There is also a return (No. 30, 1876) containing reports as to police (counties and boroughs). The total number of pages is 3,546.

"It is not proposed to enter very minutely into the question of superfluous matter in the three principal volumes themselves (year 1875, for England and Scotland, and 1874 for Ireland). There are no doubt many tables objectionable on this score, such as the accounts of prison expenditure, where the shillings and pence columns double the space occupied, but in general there is a great number and variety of subjects in these volumes, and the evil of amplification is not the one which appears most prominent. What seems here to be most striking is the difference of method followed in the volumes for the three kingdoms. In England and Ireland the records of the police courts relate to offences under the divisions of those indictable and those determined summarily, but in Scotland there is no such distinction, and on the contrary we have offences grouped according as they are in counties or boroughs. The returns of trials also differ in appearance. The English and Irish returns profess to show for each year the total number, &c., of the persons committed or bailed for trial with the result of the proceedings, the account being apparently in such a form that all commitments within a year are traced to their results, and the statistics of the description of the offence, age, and sex of criminals, &c., relate to these commitments, and the convictions or acquittals under them; whereas in Scotland a balance is struck of persons in custody at the beginning and end of the year, and the details as to offences, &c., are only given for the persons actually dealt with in a particular year. For a series of years it might not matter which mode of drawing up the returns was adopted, but the different wording of the headings of the table causes great confusion, and might lead to mistakes if a comparison of England, Scotland, and Ireland for a particular year was adopted. The elaborate details as to prisoners again—previous commitments and the like—are in a different form in the Scotch from what they are in England, the Scotch return being infinitely more detailed. As a specimen of the difference, it may be instanced that at p. 42 of the Scotch volume the previous imprisonments of prisoners received in the *same* prison are given with great detail, whereas in the English return all that is given is the previous commitments to any prison. The Irish volume follows the English in this respect. The classifications of receipts and expenditure in prisons are also different in the Scotch volume from what they are in England or Ireland.

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* In Great Britain the number on the school registers is only the number on the register on the last day of the month preceding the annual examination, and the children must have attended school within a fortnight of the examination; but in Ireland every child whose name has appeared on the register within the year is counted, whether attending school or not. See p. 16 of Forty-first Report of Commissioners of National Education for Ireland.

" Coming to the more purely judicial statistics the discrepancies are even wider. The legal systems of the three countries differing widely, and the compilation of the statistics proceeding on the plan of dealing with each group of courts in each country separately, there is no means of comparison between the three. Thus, in England there is a separate return for the common law courts, another for the equity courts, another for the county courts, another for bankruptcy, &c. In Scotland the divisions are the Inner House of the Court of Session, the Outer House of that court, the Sheriff's Court, and the Justices of Peace Small Debt Court. In Ireland the division of courts differs from both Scotland and England, with still greater differences in the statistics by the different technical terms of the proceedings. Nor is there any correspondence in the divisions of the three countries by which the same things, under different names, may be compared. Thus, the county courts in England do not correspond with the sheriff's courts, justice of peace, and small debt courts in Scotland, and the division of Inner and Outer House in the Scotch Court of Session has no analogue in England. While there is this great variety also, no care is taken in dealing with each court to distinguish what seem the essential points of all judicial statistics, the number of proceedings begun, the value claimed by the plaintiff, the result whether for the plaintiff or defendant, and whether the judgment is in a defended or undefended suit. There are also one or two curious deficiencies. It does not appear, for instance, that in Scotland there is any record of the proceedings for probate of wills or letters of administration. The use of extremely technical terms and statement in detail of the nature of proceedings also make these statistics unsuitable for general use. To take one specimen, what can be made of such a division as this in p. 29 of the English volume, Part II (Return of Proceedings in the Offices of the Clerks of Record and Writs)? :—

NAME OF PROCEEDINGS.	
2. *Proceedings in Suits by Bill or Information.*	
Copies of bills, informations, and petitions of right sealed for service	6,672
Interrogatories filed, viz.—	
By plaintiffs	1,658
,, defendants	31
Copies of interrogatories sealed for service	2,316
Amendments of bills and special cases	664
Office copies of answers sealed	1,642
Appearances entered	5,171
Pleas filed	8
Answers filed	1,665
Demurrers filed	77
Disclaimers ,,	4
Exceptions ,,	38
Replications ,,	208
Traversing notes filed	10
Depositions of witnesses filed	403
Writs of attachment and distringas for want of answer	92
Certificates of pleadings	2,100

"All this is far too technical to enable the public, who are interested, to make anything of it. The Scotch proceedings, with their technical terms of reclaiming notes, reponings, inhibitions, hornings, and many more, are equally unintelligible.

"All these are fatal difficulties to the use of such statistics, and suggest that they require to be taken in hand by a central office which would prepare schedules to be filled up so that the essential points in judicial statistics and the means of a comparison between the statistics of the three countries could be provided.

"And when we come to compare these three volumes with the separate returns and reports above specified, we find again the evils of duplicate and unnecessary printing. Thus, as to bankruptcy, the Report and Statistics of the Comptroller (for 1875), extending to about 12 pages, are reprinted at pp. 31—40 of report, and pp. 21—25 of tables in Part II of the volume of *Judicial Statistics* for England. The Return of County Courts (Plaints) for 1875, No. 415, Sess. 1876, extending to 56 pages, is also given in a summarised, but what is apparently a sufficiently complete form, at p. 18, *et seq.* of Report and pp. 13—16 of tables in Part II of volume for England, the main difference between the summary and complete return being that the former gives details for circuits only, while the latter goes into detail for each court, which appears unnecessary. The other two judicial statistics returns abovementioned, viz., County Courts Registrars (1875) and Justice of Peace Small Debt Courts (1870-75), though they repeat information in the judicial statistics, also vary the form a good deal and do not seem to be annuals; so that it is not proposed to object to them here.

" The duplicates, &c., in the volumes of prison and criminal statistics are even more important. Thus, the Reports on Prisons in the Northern and Southern Districts (Great Britain, Thirty-ninth Report) consist largely of tables as to the prisoners committed, their sentences, the expenditure of the prison, &c., embodying information which seems in fact to be the basis of the prison tables in the above volumes of judicial statistics. In addition, these reports contain elaborate details of the dietary of each prison in England and the like matters, as to which some doubt seems reasonable whether they are necessary, whether, in fact, the whole of these so-called prison reports could not be condensed in the prison statistics, which seem to contain all that is really valuable in these prison reports, and more. These prison reports (for the year ending September, 1874) extend altogether to 797 pages, which seem mostly of a dubious kind, and allowing that only two pages on the average to each prison are suppressed, as there are in all 176 prisons, this would make a saving of 352 pages.

" There is also a General Report on Prisons in Ireland (1875) which contains (1) a summary for all the prisons, differing in a perplexing way from the summary in the Irish judicial statistics, so that it may be suggested one or the other should be altered and one of the two suppressed, which, taking the shortest of the two summaries—that in the Judicial Statistics (pp. 163—180, Part I) —would be a saving of 16 pages; and (2) a number of details for each prison which appear to be mainly duplicates of information in the above summaries. Allowing that two pages for each prison, 38 in number, could be cut down, this would be a saving of 76 pages, and perhaps even more tabular matter could be omitted, considering the abundance of the matter in the general tables. (See, for instance, pp. 27 and 28, vol. ii of Irish Report, State of Bridewells, &c.)

" The above reports relate to the ordinary county and borough prisons, but we have in addition a Special Report on Convict Prisons for England, including Gibraltar and Western Australia;

Report on Prisons in Scotland, chiefly dealing with the General Convict Prison at Perth; and a Report on Convict Prisons in Ireland. In the English report (Report for 1874), besides a general summary, which is a repetition to a large extent of the information in the judicial statistics, there are voluminous details for each, which consist partly of tabular matter, forming the basis for these summaries, and therefore unnecessary, and partly of most extreme details as to the labour in each prison (also as to health, see *supra*). Of the former, as there are fourteen prisons, and there are, say, two pages of superfluous tables for each, it may be estimated there would be a saving of 28 pages, and of the latter the estimate is that there might be a saving of no fewer than 246 pages, viz. :—

		Number of Pages.
Borstal	pp. 7— 10	4
Pentonville	„ 286—304	19
Millbank (male prisoners)	„ 188—192	5
„ (female „)	„ 197—199	3
„ (military „)	„ 205—207	3
Portland	„ 329—365	37
Portsmouth	„ 401—437	37
Chatham	„ 45— 79	34
Dartmoor	„ 106—142	37
Parkhurst	„ 248—262	15
Brixton	„ 17— 26	10
Woking (male prisoners)	„ 458—480	23
„ (female „)	„ 508—511	4
Fulham	„ 164—167	4
Gibraltar	„ 537—547	11
Total		246

" These details as to labour appear in truth to be most excessive, the particulars of each job being specified, and pages after pages being occupied with matter of which the following is a specimen (p. 51, Appendix) :—

		s.	*d.*	£	*s.*	*d.*
Repairing connecting rods and points	8,626 lbs.	–	1	8	1	9
„ bolts and nuts	1,941 „	–	1	3	10	–
„ steel and iron wedges	420 „	–	2	1	18	11¼
„ gate hooks and anchor stocks	623 „	–	–¾	6	8	–
„ tipping boxes	768 „	–	2	20	13	–
Hooping waggon wheels and beetles	No. 826	–	6	–	10	–
Water cans bottomed	„ 40	–	3	20	1	2¼

" The Report on the General Prison for Scotland (Thirty-seventh Report, for 1875) contains a few tables which are repetitions of what appears in the judicial statistics or which cover the same ground, besides an abstract of the accounts of other prisons, which are dealt with in the above reports as to prisons in the northern district, but except for the confusion likely to be introduced by so many returns, the duplicate matter need not perhaps be objected to.

"The Report on Convict Prisons in Ireland (year 1875) is also comparatively a brief one, with a very little tabular matter, and therefore not conflicting with the statistics of convict prisons in the Irish judicial statistics.

"There are also duplicates in part of the judicial Statistics in the shape of Reports on Reformatory and Industrial Schools in Great Britain (year 1874) and in Ireland (1874). And these reports, extending altogether to 458 pages, appear, so far as not duplicates, to contain much that is superfluous. Thus, in the volume for Great Britain, besides 51 pages of a general report, which is not objected to, there are 12 pages occupied with a bare list of schools, names of teachers, &c. (pp. 52—63); 141 pages occupied with a dry summary of statistical facts for each school, which is a mere repetition for the most part of what appears in a more convenient form in the tables, these summaries being composed of sentences like these (see p. 65):—

> "Average number maintained, 60. Total cost for 1874, 1,164*l.* 10*s.* 5*d.*
>
> "Comparative cost per head on ordinary maintenance and management, 19*l.* 8*s.* 2*d.*
>
> "Net cost per head, including profit or loss on industrial departments, 16*l.* 14*s.* 11*d.*
>
> "Industrial profits, 176*l.* 1*s.* 5*d.*
>
> "Results on cases discharged in the three years 1871, 1872, and 1873. Of 57 boys discharged in 1871-73, there are—doing well, 34; dead, 2; doubtful, 4; convicted of crime, 10; unknown, 7.

"The following tables (pp. 205 to 327) are also very voluminous, and in the statement of expenditure, &c., the insertion of shillings and pence columns, doubling the space required, is invariable. Perhaps half this space, or 61 pages, could be saved.

"*Mutatis mutandis*, the remarks in the above paragraph are applicable to the report on Irish reformatory and industrial schools; the list of schools and dry repetition of statistical facts for each, occupying 63 pages (pp. 25—91), and the tabular matter with shillings and pence columns, &c., from which half might be saved, occupying 36 pages to make (pp. 96—131), or a saving of 18 pages.

"In addition to the above reports, there is also one on military prisons (1874), but except on account of the confusion introduced by so many reports it is not proposed to make any remark on this. The report and appendix occupy 32 pages.

"And in addition to all these various reports and the summaries in the *Judicial Statistics* there is a return for 1874 (Sess. 1876) as to prisons in Great Britain, occupying 131 pages, in which there is a repetition in a tabular form for each prison of information in the above reports of the inspectors of prisons, with a final summary for England, and a summary for Scotland, relating to a part of the subject which is dealt with in the *Judicial Statistics*. This appears to be an occasional return, but it would have been superfluous if the prisons reports and statistics had been more complete.

"Finally, the return as to police (counties and burghs) is, as respects the statistics contained, a duplicate of the information in the *Judicial Statistics*, the form only being varied. It is estimated that practically 125 pages are duplicate matter.

"Altogether, besides the great confusion and other defects in these judicial statistics, the duplicate or superfluous matter appears to extend to about 1,355 pages, viz. :—

	Number of Pages.
Bankruptcy return	12
County courts plaints	56
Prison reports, Great Britain	352
" Ireland	92
English convict prisons	274
Great Britain reformatory and industrial schools	214
Irish " "	99
Special return as to prisons, Great Britain	131
Police counties and burghs	125
Total	1,355

"A main element of confusion in the above reports is also the circumstance, that while the judicial statistics are compiled for England, Scotland, and Ireland separately, the reports on prisons and on reformatory and industrial schools are in two divisions, viz., Great Britain and Ireland. This makes difficulties in dealing with prison statistics, which are already difficult enough on account of the distinction between convict and other prisons.

"FIFTH GROUP.—*Miscellaneous Publications.*

"Under this head there are a considerable variety of publications, which will be dealt with successively :—

"1. Reports of the Inspectors of Factories, two each half year. These contain a list of prosecutions under the Act, extending in the reports for the half year ending October, 1875, to about 100 pages. A summary would be better and more instructive, while it seems undesirable in any case to publish a list of names. It appears invidious to do so, and no publication should take place unless it is ordered as part of the sentence. Allowing that each half year is as productive in prosecutions, about 200 pages per annum would be saved by condensing them.

"2. The Report of the Commissioners in Lunacy, and Report on Asylums in Ireland; also Report of Commissioners in Lunacy for Scotland. The tables in the English report (thirtieth) are generally in a summary form, but this seems hardly to be the case with the tables (pp. 100—17), which contain a certain detail of the admissions, deaths, and discharges in each institution, not at least required for statistical purposes. The tables in the twenty-fifth Irish report (pp. 20—118) are more numerous than those in the English report, and should perhaps for that reason be inquired into. There are, for instance, details as to officers in district asylums, scales of pay and allowances, &c. (pp. 82—94, or 12 pages in all), which seem especially objectionable. Perhaps one-half of the 110 pages occupied, or 55 in all, could be saved. In addition, these lunacy reports necessarily deal with pauper and criminal lunatics, leading to a great deal of repetition of what must be in the judicial statistics and poor law reports. There ought to be a common understanding in such matters as to where the information is to be published.

"The Scotch report (seventeenth) contains no fewer than 75 pages of statistics, mainly composed of detail as to asylums, public and private, in each parish in Scotland, abstracts of accounts with shillings and pence columns, &c. As many of these pages are double size, it seems a safe estimate that, allowing all the summaries to pass and suppressing only the details, nearly the whole of this space could be saved, or say 60 pages.

"3. The Mint Report, which is comparatively brief, and is not here observed upon.

"4. The Report of the Ecclesiastical Commissioners for 1875. This report, besides the accounts, contains 94 pages of *lists* of the transactions of the commissioners—grants of benefices, preferments, enfranchisements, &c.—for which might be conveniently substituted, for statistical purposes, a summary of some kind, showing perhaps in a single page the numbers of each kind of transaction, amounts involved, and other points which may be of interest.

"5. The Report of the Copyhold Commission for 1875 contains 28 pages of a mere *list* of enfranchisements, besides summaries.

"6. The Inclosure Commission Report for 1875 contains 11 pages (pp. 17—27) of a similar list.

"7. Tithe Commission Report for 1875; four pages only. This report may be noted as contrasted with the previous ones, a summary of transactions being given instead of a detailed list.

"8. Charity Commission Report for 1875. This report contains a list of draft schemes, occupying, however, two pages only; otherwise it is much less detailed than 5 and 6, although dealing with a more important subject.

"9. Reports of the Registrar of Friendly Societies for 1874. This report contains (1) a *list* of trade unions, pp. 39—48, or 10 pages; (2) a list of building societies which have made returns, with abstract of accounts, pp. 54—63, or 10 pages; and (3) a list of friendly societies which have made returns, occupying 152 pages (pp. 71—222). These are exclusive of summaries, which seem all that is really required.

"There is also a return as to industrial and provident co-operative societies (No. 361, Sess. 1875), occupying 88 pages, and showing in detail the liabilities and assets of *each* society. Would not some sort of summary suffice? It does not appear, however, whether this is annual or not, though if it is annual the expediency of some kind of grouping instead of all this detail should be kept in mind. Probably the county summaries embodied in this return would be sufficient for annual purposes.

"Two or three minor returns—Report of Registrar of Friendly Societies in Ireland, Report on Trade Unions in Scotland, Report on

Loan Societies—seem now to be incorporated in above Report of Registrar of Friendly Societies.

"11. Report on Salmon Fisheries (England and Wales) for 1875. This report contains (pp. 69—95) about 27 pages of matter in a tabular form relating to offences in each district, which might be very greatly condensed.

"12. Report on Scotch Herring Fisheries for 1875. This is not so voluminous as many reports previously dealt with, but seems to contain a few tables as to import and export of herrings, which ought to be in the annual statement of trade, if anywhere; and other tables as to tonnage and number of fishing boats, number of men engaged, &c., which properly belong to the general shipping statistics. Perhaps about 10 pages are unnecessary.

"13. Report on Irish Fisheries for 1875. This report is liable to remarks similar to those on Scotch report. In addition (pp. 50—59) there are 10 pages occupied with details of fish forwarded by particular lines of railway in Ireland, which ought to be condensed, so as to bring out some general fact. These tables are only the raw material of statistics.

"14. General Annual Return of British Army for 1874. This return does not seem to call for observations. It occupies only 84 pages, which seems a small proportion compared with other statistics, such as those of the health of the army and navy.

"15. Annual Report of the Veterinary Department of the Privy Council for 1875. The statistical tables in this report, besides giving information as to the business of the department, contain a mass of other matter, much of it only a reprint or amplification of the statistics of other departments, while some of the tables properly relating to the business of the department seem much too detailed. Thus one page (p. 78) is confessedly a reprint from the agricultural returns of the total cattle in the country for a series of years; four pages (pp. 79—82) relate to quantities of meat imported to certain markets, and prices of beef and mutton, which are to some extent a copy and extension of the miscellaneous statistics of the United Kingdom; 18 pages (pp. 88—105) are mainly occupied with a detail as to certain diseases—pleuro-pneumonia, &c.—in each *week* in each county of England; an infinitely greater detail than is attempted in the population statistics, which are so much more important, and have themselves, as we have seen, been found too voluminous; 11 pages (pp. 109—119) are, as to all that is essential, a reprint of the information respecting cattle in the annual statement of trade, while much amplification is introduced, the treatment suggesting that if other articles of trade were dealt with in a similar way, not one, but twenty annual statements of trade, would be necessary; 15 pages (pp. 120—134) are occupied with an immense detail, by ports and countries, as to animals slaughtered on arrival, &c.; and three pages (pp. 135—137), as to dead meat, are confessedly a reprint from other sources of information, or from details supplied by the customs in amplification of the annual statement; in all, about 52 pages of apparently superfluous matter.

"This report especially suggests the remark, that nothing is easier than the amplification of statistical tables. Almost any statistics can be varied indefinitely; and if departments were in the habit of taking well-known figures and making new tables of them, the mass of statistics would grow indefinitely larger and be fuller even of pitfalls than it is now.

"16. Reports of the Inspectors of Mines for 1874. Mineral Statistics of the United Kingdom, by the Keeper of the Mining Records, also for 1874. There is an issue of the Reports of Mining Inspectors for 1875, but the Mineral Statistics for that year have not been issued. There is a considerable amount of duplication in these two returns. The reports are preceded by a statistical summary, occupying 17 pages (pp. vii—xxiii); but this summary, as far as the produce of the mines is concerned, necessarily covers the same ground as that of the volume of mineral statistics. The figures, moreover, do not quite agree. The production of coal, for instance, according to the summary of the mining inspectors' reports, was 126,590,108 tons, but according to the mineral statistics the figure is 125,043,257 tons. In the introduction to the mineral statistics the mining inspectors' reports are, moreover, spoken of as incomplete for statistical purposes, and care should certainly be taken that conflicting figures are not published. Each of the inspectors' reports, again, contains a list of accidents in each mine and a list of mines under the Coal Mines Regulation Act, &c., the whole extending to 208 pages.* It is suggested that as to part of this, viz., the list of accidents, occupying 82 pages, there ought not to be a list but some grouping, so as to bring out a general result; and as to the list of mines, this conflicts with a list in the mineral statistics, occupying there 99 pages (pp. 181—278). Altogether about 200 pages might be left out of the mining inspectors' reports if the information about accidents was compressed, and the statistics as to produce, &c., left to be dealt with exclusively in the mineral statistics. The latter result would of course be equally gained by striking out of the mineral statistics what appears in the other volume. If the list of mines is itself not really required, a

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* Viz.:—	List of Accidents.	List of Mines.	Total.
Mr. Willis's report ....(pp. 9—18)	5	5	10
,, Dickinson's report (pp. 27—35 and 47—57)	8	12	20
,, Evans's report ....(pp. 71— 82)	5	7	12
,, Wynne's ,, ...(,, 107—112)	3	3	6
,, Brough's ,, (pp. 117—127 and 129—131)	5 1	6 2	11 3
,, Baker's ,, ...(pp. 136—149)	5	9	14
,, Wales's ,, ...(,, 160—177)	11	7	18
,, Moore's ,, ...(,, 185—217)	8	25	33
,, Alexander's report ....(,, 227—237)	5	8	13
,, Willis's report ....(,, 247—255)	4	5	9
,, Wardell's report ....(,, 275—290)	6	10	16
,, Bell's report ....(,, 299—312)	7	7	14
,, Foster's report ....(,, 324—337)	6	8	14
,, Evans's ,, ...(,, 350—364)	3	12	15
	82	126	208

still further condensation would be practicable; nor is it easy to see why Government should publish a directory of this industry and not of others; for instance, of shipbuilding yards or cotton-spinning mills or stockbrokers.

"The mineral statistics themselves, besides an immense amount of detail as to prices and the production of particular mines, also contain about 27 pages of imports and exports of copper, tin, iron, &c., which are a reprint of so much of the annual statement of trade, and to which therefore the remark applies already made respecting a similar practice in the statistics of the veterinary department of the Privy Council.

"The mining inspectors' reports of 1875 repeat the detail as to mining accidents and lists of mines to which exception has been taken.

"Altogether in these miscellaneous reports and papers there appears to be the following quantity of duplicate or otherwise doubtful matter:—

	Number of Pages.
Inspectors of Factories	200
English Lunacy Report	18
Irish ,,	55
Scotch ,,	60
Ecclesiastical Commissioners	94
Copyhold	28
Inclosure	11
Report of Friendly Societies	172
,, on Salmon Fisheries	27
Scotch Herring Fishery	10
Irish Fishery	11
Veterinary Department of Privy Council	52
Mining Reports and Mineral Statistics	227
Total	965

—in addition to the other evils of want of arrangement and the confusion caused by varying statistics on the same subject.

SIXTH GROUP.—*Finance Statistics.*

"A list is given in the appendix (Appendix B) of the finance accounts, reports, and returns which are issued annually in connection with the imperial finance of the United Kingdom. But, for the reasons already stated in connection with the local taxation accounts, it is not proposed to examine fully into the question of the defects of this part of parliamentary printing. There is a broad distinction between accounts and statistics, and especially in imperial finance: where the accounts are printed to aid in the direct control by parliament over the public revenue and expenditure, it must be recognised that the publication is governed by considerations of a very different nature from those which regulate pure statistics. The remark may be permitted, however, that a difficulty in using these accounts for statistical purposes in all probability interferes with their usefulness in other respects; this is the multiplication of returns. To take the question of revenue alone: in addition to the finance accounts, which ought really to contain all that is essential, we have reports by each department of receipt—the customs, the inland revenue, the post office, the woods and forests—all containing matter which is repeated in the finance accounts with additional details, which are perhaps in some cases unnecessary, and in all cases, so far as necessary, could be incorporated in the finance accounts themselves. Each department might still be required to report as at present, but it would certainly be convenient statistically, and it is submitted would be convenient for other purposes as well, if all the tables judged necessary for publication were incorporated in the finance accounts. In addition, there are special returns as to spirits, brewers' licence duties, the income tax, and other matters which could all with more advantage be embodied in the finance accounts. In this particular the French mode of embracing a great deal in a single volume or two, the *Compte Définitif* and the *Compte Général de l'Administration des Finances*, appears to be better than our own; and the special evil in the French publications, the great delay in their appearance, would still be quite avoidable if the proposed change were made.

"As a special inconvenience of the publication of tables in the separate reports of different collecting departments, it may be pointed out that in the customs report the particulars as to customs duties are given for the year ending 31st December, although the financial year ends on 31st March. The details, it is submitted, instead of being worked out for the calendar year should be worked out for the financial year, the alteration of the date being especially awkward for statistical uses.

"Another remark which may be admitted is that some of the accounts of expenditure, especially the navy dockyards and army manufacturing establishments, are extremely voluminous. For all statistical uses, at any rate, two or three of these formidable blue books might as well be suppressed, and perhaps the suggestion may be allowed that these accounts are not scrutinized in any way that would justify such minute publication. The public would probably learn more from more condensed publications.

"While the finance accounts are thus passed over with little remark, an exception may be made for the savings bank return (No. 308, Sess. 1876). Certain particulars of savings banks are no doubt necessary, as a large part of the government debt consists of money which it owes to these banks, but is there any reason for publishing the present detail as to each savings bank throughout the country? If these details were suppressed from the return about 86 pages might be saved.

SEVENTH GROUP.—*The Board of Trade Statistics (including the Customs Report and Irish Agricultural Statistics).*

"It has been judged most convenient to leave the Board of Trade statistics to be dealt with last, and there fall to be considered along with them—(1.) The customs report, which happens to deal largely with trade matters; and (2.) The Irish agricultural statistics, as relating to a branch of statistics for Ireland corresponding to the agricultural returns for Great Britain, which are under the charge of the Board of Trade.

"We propose to consider first of all the statistics issued by the Board of Trade which are not under the charge of its statistical department. These are, the return known as the shipping return, which is not the work of any special department, though the statistical department contributes most of the matter; the returns of railway accidents, which are under the care of the railway department, with Captain Tyler's annual report on these accidents; and the wreck return, which is compiled in the marine department.

"As to the first, it may be suggested that it is not of a kind which need be annual. The information for it is necessarily contained in other parliamentary papers, principally in the annual statement of navigation and in the statistical abstract relating to foreign countries, and the large volume of statistics relating to foreign countries; and although the tables in this return on the subjects they refer to cover more years than the tables in the annual volumes from which they are abstracted, it may be suggested that in all this there may be no sufficient reason for making the present return annual. Perhaps one of the best ways in which a statistical department which had the means of looking at statistics comprehensively could be employed would be in devising and improving special returns like the present from time to time, without, however, making them annual. A publication once in five years or so would make them more interesting, besides calling attention to the fact that they are constructed to throw special light on a particular subject, and are not in the same category as the general annual statistics, which contain the whole data for the period to which they relate, but are not directed to illustrate any special point.

"In the railway accidents returns (1875) attention is directed (1) to the extent of the detailed lists of accidents in the principal returns, four in number each year, occupying, in addition to the summaries, which are or ought to be all that are required for statistical purposes, no fewer than 350 pages, viz.:—

		Number of Pages.
In March quarter	pp. 10— 82	73
,, June ,,	,, 9— 78	70
,, September quarter	,, 9—103	95
,, December ,,	,, 9—119	111
Total		349

and (2) to the extremely full details given in Captain Tyler's report with reference to broken axles and tyres, extending in all to 83 pages (pp. 43—125) which are to a large extent a repetition of the return of accidents themselves, the one being a tabulated and the other a written description. It would be out of place to discuss here the expediency of so minute a publication; but as attention has been called to the apparent inconvenience of similar details in the publications of other departments, the practice of the Board of Trade in this matter must also be referred to. For statistical uses such voluminous detail is certainly cumbersome. There appears likewise to be some repetition in these railway accidents returns (see pp. iii—viii of the return for December, and pp. 33—39 of Captain Tyler's report. The latter deals with accidents which have been reported on by inspectors, but is there any need to give this in tabular and statistical form ?) Altogether, if the view should be taken that the above lists of accidents are unnecessary, there might be a saving of 438 pages in these returns.*

"The wreck return or wreck abstract appears liable to two or three grave objections which affect the serviceableness of the whole return. One is, that during the last year or two the return has been made up for the twelve months ending 30th June instead of the twelve months ending 31st December, which was the former practice. The change was no doubt made after full consideration and for good reasons, but the result is that the use of the statistics for comparison with other shipping statistics, which are made up in this country, and almost all others, for the year ending 31st December, is necessarily diminished. It would be impossible now, even if the attempt were made, to compare the movement of shipping in any one year with the wrecks in that year, although an effort in this direction was always possible as long as the years corresponded. Admitting the reasons for ending on the 30th June to be overwhelming, the simple expedient of giving all the data for *half years*, as well as for the year, would have enabled those who still desired to use the figures for the year ending 31st December still to do so. It would not have been necessary for this purpose to use the half-yearly division throughout all the tables, but only in a certain number.

A still more objectionable feature in a statistical view is that as regards wrecks abroad, the compilation is of wrecks reported to the Board of Trade in particular years and not of wrecks occurring in particular years. The reason of this has obviously been to permit the completion of the volume without excessive delay, which would have deprived it of public interest. And if the balance of wrecks left over from one year to another had been small this reason would have been perfectly valid. The year of *reports* and the year of *occurrence* would have corresponded closely enough for all practical purposes. Unfortunately an examination of the tables proves that the balance of wrecks left over is enormous, and that the wrecks reported in a particular year, say, for instance, in 1873-74, do not correspond in any way with the actual wrecks of that year. In part IV, which deals with wrecks abroad, exclusive of those on the coast of British possessions, we find that out of 3,260 lives reported as lost at sea in that year no fewer than 1,132 occurred in the year 1872, and 1,521 in the year 1873 (? six months ending June, 1873), leaving only 607 for the year to which the return professedly relates. Analysing still farther, we find that in point of fact a large loss of life in the China Seas in the year 1872 (viz., 823 lives) had only been brought to account in 1873-74, so that the account is wrong both ways, 1872 being debited with far too little, as well as 1873-74 debited with far too much. Nothing in effect could be more misleading as regards any inferences which might be suggested as to the influence of legislation in preventing wrecks or loss of life. It would appear that if an early publication of wrecks reported is considered expedient, the publication of some details could be suspended until the returns could be compiled for a given year. The 'account' of a year could be kept open for two or three months after its expiration, and in these days of telegraphic communication this should give time for bringing all wrecks to account, even those occurring in distant places.

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* Since this memorandum was in type, I have learnt that it had already been decided by the railway department of the Board of Trade not to continue the publication of these quarterly lists of accidents.

"Another feature is that the three great divisions of wrecks do not relate to the same subject matter, but each is different from both the others. Thus the first division (Parts I and II) deals with the wrecks to all vessels, whether British or foreign, on the coasts of the United Kingdom; the second (Part III) to the wrecks of British and foreign vessels on the coast of the Channel Islands and British possessions abroad; and the fourth division (Part IV) to the wrecks of British vessels elsewhere than on the coast in the two previous parts. The phrase, British, also includes vessels belonging to the colonial possessions of the United Kingdom, and this may make a serious difference as to inferences drawn especially from the statistics in Part III. Attention should have been given, if possible, in all the tables to the wrecks of vessels belonging to the United Kingdom only; the broad distinction of their being under the jurisdiction of Parliament requiring the data relating to them to be separated from the rest.

"In addition to these defects of substance and construction, the returns appear to contain a good deal of excessive detail. It would seem possible, for instance, to curtail the wreck charts, six in number, the single chart for the United Kingdom being really all that is required. It is very doubtful how far diagrams are really useful in official statistics, but it is certainly wasteful to multiply them. In the present case, besides the chart of wrecks for the United Kingdom, there is a chart specially showing the loss of life, although the loss of life must depend absolutely on the wrecks, and there are three charts for each division of the United Kingdom, although the first chart for the whole United Kingdom is or might be detailed enough. The remaining two charts are for Europe and the whole world; but however useful these two charts would be, especially a series of them, if they were drawn out for years of actual occurrences, they are out of place when used to illustrate the inexact data of wrecks reported in particular years.

"Then we have the following details:—

	Number of Pages.
List of ships wrecked on coasts of United Kingdom, pp. 42—48	7
Details of casualties involving loss of life, ditto, pp. 49—55	7
Geographical *list* of wrecks, pp. 57—63	7
Details of ships with loss of life abroad, pp. 85—100........................	16
,, inquiries into wrecks, pp. 106—288..	183
List of places, &c., where lives saved, pp. 293—302	10
,, rewards given, &c., pp. 305—319	15
Total	245

"A good deal of this detailed information is perhaps called for, but as regards the first four items at least, it appears evident that the summaries, which are not objected to, are far more instructive to the public. The fifth item, containing details of inquiries into wrecks, is open to the criticism that while a summary would be more useful there can be no more call for giving such detail than for publishing the detail of all other judicial inquiries. The last two lists are liable to the same criticism as that which has been already passed on the publications of the science and art department. Sufficient publicity is given at the time to the awards of the courts of inquiry, and they need not be recorded in detail in this permanent form, although a statistical summary may be given.*

"We come next to the publications of the Statistical Department of the Board of Trade. These are:—

"*a.* The three abstracts, United Kingdom, Colonies, Foreign Countries.
"*b.* The Miscellaneous Statistics and annual volumes relating to Colonies and Foreign Countries, three volumes, each published once in three years.
"*c.* The Corn Returns.
"*d.* The Cotton Statistics.
"*e.* The Emigration Returns.
"*f.* The Monthly Trade Returns.
"*g.* The Annual Statements of Trade and Navigation (the Customs to be considered with them).
"*h.* The Agricultural Returns (the Irish Agricultural Statistics to be considered with them).
"*i.* The Railway Statistics.

"For obvious reasons it would be unsuitable to criticise these publications here with the freedom that has been used towards those of other departments, but a somewhat different line of observation, which seems more natural, may support the conclusions already arrived at. It is not proposed to offer any observations on *a*, *b*, *c*, *d*, *e*. The returns *a* and *b* are the more characteristic work of the department, and being confessedly digests of other statistics are so far reprints, without, however, it is submitted, becoming obnoxious to the criticisms already passed on duplicate printing. Even when statistics have been condensed in the original publications as much as possible, the mass will always be so great that a digest of some kind will, it is believed, be expedient. In any case the foreign and colonial abstracts and volumes are practically original compilations, and present officially to English readers a mass of statistical fact not otherwise accessible. Of the two home volumes, the abstract and miscellaneous statistics, the utility of the latter has been much questioned, especially as the publication is always late, while it also seems more of a reprint. It may be stated, however, that the work is much more of a digest than appears at first sight, and its value is increased by the very circumstance that in preparing it the difficulties in the way of harmonising the various statistics which are discussed in the present paper have been grappled with, and an endeavour made, often by means of laborious communications with the separate statistical offices, to present the facts which are embedded in the numerous publications here reviewed in a more accurate and consistent as well as more condensed shape. There is also a considerable amount of original matter in this volume, completing our knowledge on many subjects which are passed over in other annual volumes of the various departments. This remark especially applies to the information about prices and wages. It seems unfortunate, in one respect, that it was decided to issue these annual volumes of the department only once in three years, as the result has been to make the preparation of one volume more laborious than was formerly the preparation of three.

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* The wrecks return specially dealt with here is for the year 1873-74, but the subsequent return (for 1874-75) is not materially different, with the exception that the details of the wreck inquiries have been considerably enlarged.

"The returns *c*, *d*, and *e* are weekly and monthly returns, and presumably required for current use, while they are inconsiderable in bulk. In *e* there is also included an annual report on emigration, the tables for which are very few. The railway statistics, *i*, are also very brief, though the department would prefer condensing them if any plan of grouping the different companies could be suggested.

"There remain, then, to be considered the monthly and annual returns of trade and navigation. These are, perhaps, the best known of the statistical publications of the country. The monthly returns are eagerly looked for and commented upon by general and trade newspapers. The annual statement, though less commented upon at the time, is also widely consulted. Respecting both, applications are frequently received at the statistical department of the Board of Trade, either from persons desiring copies or explanations and additional information. These publications have also been frequently 'advised upon' in order to improvements in the headings, time of publication, and other particulars. It may be considered therefore, that in many respects they are likely to be freer from objection than many of our other statistics. But passing over the monthly returns, which appear to contain little, if any, surplus matter, it may be pointed out that, if anything, the annual statements, like so many other statistics, appear to err on the side of excess. It will be my duty to consider this more fully, but it appears to me at present that it would be very difficult to justify, for instance, the publication of pp. 30—105 (76 pages of the annual statement of navigation). These pages showing the movements of shipping *at each port* from and to each country and British possession, the details with cargoes and in ballast being shown separately, and whether the shipping is British or foreign. It is difficult to imagine that all these details as to each port can serve any purpose whatever. If it is thought necessary to indicate in some way what countries particular ports trade with, it would seem enough to take the total entries and clearances, without for this purpose going into all the detail of whether ships are with cargoes and in ballast, and whether they are British or foreign. The following 90 pages (pp. 106—195) seem also liable to a very similar objection, repeating the information in a somewhat different form, and working it out with the additional detail of sailing and steam vessels, in addition to coasting tables. I am informed that in Mr. Mayo's time the propriety of giving much of the information in these tables was discussed, and it was found necessary, on account of the local demands, to give it; but perhaps there could be no fitter subject of inquiry by a committee than whether much of the detail upon which a few of the public insist vehemently is at all required.

"In the annual statement of trade, again, it would seem well worth considering whether the form of the tables (pp. 182—269) could not be so altered as to save much space. These are the tables showing in detail for five years the trade of each foreign country and British possession with the United Kingdom. By the simple expedient of only putting the years at the head of the tables for each country instead of repeating them each time for imports, exports, and re-exports, some space would be saved, and the tables themselves would perhaps be clearer. It might also be worthy of consideration whether, in these comparative tables, there is any necessity for printing the 'hundreds.' In other words, it might be enough to state all amounts in thousands of pounds instead of pounds simply, and possibly half the space could be saved by this expedient alone, the whole work besides becoming clearer. It is in dealing with such masses of figures that the necessity of abridgment becomes most felt.

"The principal matter, however, in dealing with this annual statement is the duplication of its contents in other volumes, as well as its duplication of what properly belongs to other publications. The statement being compiled at the Custom House, the authorities in charge of it here seem to have yielded to the temptation of including in it some of their own finance data, which have no proper place except in the finance accounts, and to have also duplicated in their own report the properly trade tables which are in this statement. Thus 3 pages (pp. 17—19) in the annual statement are occupied with a detail of the amount of customs duty received at each port, &c., for five years, information which is given for two years only, and with the increase and decrease worked out at pp. 83—95 of the Customs report. Only one of the two tables seem necessary, and there seems no necessity to put them in both publications. On the other side no fewer than 32 pages, viz., pp. 81, 104 and 105, and 107—135 of the Customs report are filled with matter from the annual statements of trade and navigation only slightly varied in form, and as to one article, tea, diversified by the addition of information as to the amount of duty collected. It is only necessary to read the titles of the tables to see that they must be duplicates. They are:—

Account showing the Value of the Imports into and the Exports from the United Kingdom in each year from 1866 to 1875 inclusive.

Appendix (H.)—An Account showing the Quantities of Raw Cotton imported into the United Kingdom in each Year from 1871 to 1875, distinguishing the principal Countries from which imported, and the Increase and Decrease per cent. in each Year.

Appendix (I.)—An Account of the declared value of the Imports and Exports of Gold and Silver Bullion and Specie registered in the Year ended 31st December, 1875.

Appendix (L.)—An Account of the Tonnage, distinguishing British from Foreign, entered Inwards and cleared Outwards in the United Kingdom, during each Year from 1866 to 1875, both inclusive.

Appendix (M.)—Registered Tonnage of the British Empire:—
New Vessels Built and Registered during each Year from 1866 to 1875, both inclusive.

Appendix (N.)—Registered Tonnage of the British Empire:—
Aggregate Number of Registered Vessels existing on the Registry in each Year from 1866 to 1875, both inclusive.

Appendix (O.)—No. 1. An Account showing the Value of British and Irish Produce and Manufactures exported to the United States of America in each Year from 1871 to 1875, respectively, specifying the principal Articles.

No. 2. An Account of the Value of the Imports into the United Kingdom from the United States in each Year from 1871 to 1875, respectively.

Appendix (P.)—No. 1. An Account showing the quantity of Tea Imported into the United Kingdom in each year from 1866 to 1875 inclusive, specifying the Quantity Imported severally into London, Liverpool, and Ports other than London and Liverpool; also the relative Percentage of the parts of the whole.

No. 2. An Account showing the Quantity of Tea annually entered for Home Consumption in the United Kingdom, with the average Rate and aggregate Amount of Duty collected thereon, specifying the Quantity entered in London, the Amount of Duty thereon, the Quantity entered in Ports other than London, and the Amount of Duty thereon, and severally, the relative Percentage of Import and Percentage of Duty collected, from the Year 1866 to 1875 inclusive.

Appendix (Q.)—No. 1. An Account showing the Value of British and Irish Produce and Manufactures Exported to France in the Year 1860, and in each Year from 1871 to 1875, respectively, specifying the principal Articles.

No. 2. An Account of the Value of the Imports into the United Kingdom from France in each Year from 1871 to 1875, respectively, distinguishing the principal Articles.

Appendix (R.)—No. 1. An Account of the Value of Foreign and Colonial Merchandise Exported from the United Kingdom to the United States of America in each Year from 1871 to 1875, respectively, distinguishing the principal Articles.

No. 2. An Account of the Value of Foreign and Colonial Merchandise Exported from the United Kingdom to France in each Year from 1871 to 1875, respectively, distinguishing the principal Articles.

Appendix (S.)—A Return of the Ports at which Cattle, &c., have been imported in the Year 1875, stating the Number Imported at each Port.

APPENDIX (T.)—A Statement for the Year to the 31st December, 1875, of the total estimated Amount of Duties of Customs repealed or reduced, and imposed or augmented.

APPENDIX (V.)—An Account of the Quantities of Unmanufactured Tobacco Imported into the United Kingdom, in each Year from 1871 to 1875 inclusive, distinguishing the principal Countries from which imported.

APPENDIX (W.)—Average Rates of Value for Coals, British Cotton, Linen, Woollen, and Iron Manufactures, Exported from the United Kingdom in the Years 1873, 1874, and 1875, respectively.

APPENDIX (X.)—A Statement showing the Quantity and Value of Coal, Coke, and Cinders, and Fuel Manufactured, Exported from the United Kingdom in the Year ended 31st December, 1875, distinguishing the Countries to which exported.

APPENDIX (Y.)—No. 1. An Account showing the Value of the Imports from Germany in each Year from 1871 to 1875 inclusive.

No. 2. An Account showing the Value of British and Irish Produce and Manufactures Exported to Germany in each Year, from 1871 to 1875, respectively, specifying the principal Articles.

APPENDIX (Z.)—No. 1. Quantities and Value of the Principal Articles of Foreign and Colonial Merchandise Imported into the United Kingdom in the Year 1875 as compared with the Year 1874, together with the Increase or Decrease per cent. thereon.

No. 2. Quantities and Values of the principal Articles of British and Irish Produce and Manufacture Exported from the United Kingdom in the Year 1875, as compared with the Year 1874, together with the Increase or Decrease per cent. thereon.

APPENDIX (AA.)—Total Value of the Imports of Foreign and Colonial Merchandise, and of the Exports of Produce and Manufactures of the United Kingdom, in the Year 1875, distinguishing the Countries in the order of the Total Value of their Trade with the United Kingdom.

"The variation from the form in the annual statement itself is usually very little in reality, and where it is most in appearance the remark applies which was made above with reference to the variations and amplifications of the veterinary department of the Privy Council, that if the method was applied to the various articles and countries in that statement its size would expand indefinitely. It is very curious, no doubt, to show the trade of France and the United States as above stated in the Customs report instead of in the form common to them and other countries in the annual statement, but why not extend the rule to the British possessions in India, to Australia, to Brazil, and to other countries? For what reason, again, should we have in this report a return of the ports at which cattle were imported in 1875, when this is treated in the annual statement like all other principal articles at the ports? The repetitions are all the worse because trade is very fully dealt with in the statistical abstract, and there is certainly no call for a duplicate volume; and it is a curious illustration of the ease of amplification that the above port account as to cattle is substantially repeated in the report of the veterinary department of the Privy Council, so that the case is really one of triplication.

"There is no wish, it may be added, to say anything adverse to the construction of some of these tables in the customs report. One or two might perhaps have been suggested as additional improvements to the annual statement. It is an instance of the misfortune of extreme subdivisions of statistical departments that the subordinate office in respect of the trade returns is tempted to neglect the suggestion of improvements in its main work in the proper quarter, and instead to set up a quasi-competing work. No suggestion has been received at the Board of Trade with a view to improving the annual statement by embodying the tables in the customs report. It is estimated that altogether 28 pages of these customs tables might be saved.

"The last publication of the statistical department to be noticed is the agricultural returns. In one respect there is duplication here. Besides publishing a single page of anticipatory summary in September, this department has circulated, in October, a county summary, extending to 34 pages, which might be dispensed with if the returns themselves could be prepared a little sooner. All that can be said is that the issue of these returns is a comparatively new business, that the date of issue has gradually been accelerated, and that the attempt will be made in future to dispense, if possible, with the county summary.* The returns themselves, it is believed, are in no way too elaborate, and their bulk seems inconsiderable compared with the elaborate returns on what seem less important subjects which have been commented upon. The smallest unit for which details of crops, &c., are given is the county, although the returns, it is believed, are even more generally interesting than the details, say of pauperism in each union, or of the school board expenditure in each parish, or the deaths from various causes in each registrar's sub-district. The appetite for detail is insatiable; and the temperance of the statistical department of the Board of Trade is claimed as deserving of credit when compared with the excess which other departments have indulged in.

"As it happens, the Irish agricultural statistics offer themselves as a contrast to what is attempted by the statistical department for Great Britain. Altogether, instead of the modest county summary and annual volume issued by the Board of Trade, we have in Ireland (1) general abstracts of the acreage under crops, corresponding pretty nearly to the English county summary, and extending to 40 pages; (2) tables of the estimated average produce of the crops, &c., extending to 48 pages; and (3) the agricultural statistics extending (year 1874) to 199 pages of appendix, besides 81 pages of report.

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* Since this memorandum was written and printed, definite arrangements have been made for accelerating the publication of the returns, and the anticipatory county summary will accordingly be dispensed with. 1st May, 1877.

"Passing over the general abstracts, as subject to the remark already passed upon the English county summary, we come to the second of the above publications, to which we think exception may fairly be taken on various grounds, as well as the mere bulk of the whole compilation. No fewer than 21 pages (pp. 25—46) are occupied with a return of scutching mills (for flax), in each barony of each county, instead of a statistical summary being given, while the tables at pages 12—18 and 19—24 (11 pages), which are tables as to produce and emigration, the special subjects of the return, are repeated with amplitude in the report itself, occupying pages 1—10. Even if this return were not a duplicate, the greater part of it would seem unnecessary, and space would be saved by combining it with the county summary. It appears also to be more than doubtful whether any reliable data as to average yield are obtainable, although such information is no doubt professedly given by many governments.

"In the fuller return, however, we find that much of the information as to produce, emigration, and scutching mills is duplicate, see pp. 14—17, and 22—24 of report. Table IV, p. 5, of return of estimated average produce is, for instance, an exact copy of Table XIII, p. 15, of agricultural statistics; and besides this duplication, the fuller return is most voluminous. The following pages (report for 1874-75) were excessively detailed:—

"(1.) pp. 30—37 of report, showing the extent of land under crops by poor law unions.

"(2.) pp. 38—48 of report, showing the extent of land under crops in each year since 1847 by *counties*.

"(3.) pp. 51—61 of report, showing average produce of each crop per acre by counties for the same period.

"(4.) pp. 67, 68, showing quantity of live stock in 1874 per poor law union, &c.

"(5.) pp. 69—79, showing quantity of live stock per county in each year from 1847.

"(6.) pp. 1—199 of appendix, the whole of it showing with detail for each barony and each union the extent under each kind of crop, and the quantity of each description of live stock in the several descriptions of holdings classified as follows:—

Holdings		not exceeding	1 acre
„	above 1	and not exceeding	5 acres
„	5	„	15 „
„	15	„	30 „
„	30	„	50 „
„	50	„	100 „
„	100	„	200 „
„	200	„	500 „
„	500 acres.		

"In 1874-75 there were altogether 240 pages in this volume of statistics, exclusive of the duplicates in the county summary, &c.,

for which there are no corresponding details, in the agricultural returns for Great Britain, and although the later report (for 1875) is happily much curtailed, the greater part of the details as to holdings being omitted, there are still about 35 pages out of a total of 55 which are full of detail, not appearing in the return for Great Britain. The question seems therefore fairly raised, whether much of the detail in the Irish return is necessary, and it is submitted that there can be no good reason in such statistics for taking a lower unit than a county, and that as to counties, there can be no necessity for showing in each annual return so much detail for a long series of years as is done in the above statistics, pp. 38—61 and 69—79. There must be a limit in the matters selected for comparison over a long series of years, as well as to the size of the unit for which details are given. It might conceivably be useful to take a census as to some of these details every ten years or so; but to give it annually, and repeat it annually for a series of years, does not serve a useful purpose.

"Another point in these agricultural statistics is, that pp. 19—21 are occupied with some detail of the value of live stock, but this value on investigation is found to be purely artificial, and to be the same year after year, so that the valuations give no information beyond what is obtained from the mere numbers of the stock. They are even misleading, because the valuation suggests that the value has remained the same all through, whereas it has probably changed very much.

"Altogether, in the statistics dealt with in this group, it is estimated that the following pages might be condensed :—

1. In publications of the Board of Trade not under the Statistical Department (Railway Accidents and Wrecks)	683
2. In publications of the Statistical Department (Shipping Statement)	160
3. In the Customs Report	28
4. ,, Irish Agricultural Statistics	59
Total	930

"In this connection, however, the defects glanced at in such publications as the wreck abstract and the customs report, arising from the want of correlation with other statistics, or from the quasi-independence of a department which ought to be wholly subordinate, are considered to be even more important than the mere excess of mass. There is a great deal of confusion which ought to be got rid of. It is also true, of course, that the mass aggravates the confusion.

"ADDITIONAL GROUP.—*Periodical Publications, not Annual.*

"In addition to the various annual reports and papers, there is a mass of documents which are periodical, though not annual, and which it appears, therefore, convenient to include in this review. We refer to the census publications and related documents. This subject is so important by itself, especially as the census requires a periodical Act of Parliament, that it would perhaps be out of place here to go into the same detail, and it is not proposed to do more than refer to one or two points. The principal of these is the relative mass of the English, Scotch, and Irish, publications.

The English census occupies	....	2,583 pages.
,, Scotch ,,	....	1,163 ,,
,, Irish ,,	....	5,592 ,,

"In other words the mass of printed matter for Ireland is more than double that for England and five times that for Scotland, a disproportion totally inexplicable on any reasonable ground. There appears to be information attempted on some matters not dealt with in the Scotch and English reports, but the principal cause of the expansion is found to be the adoption of a very low unit, viz., the *townland*, in many of the tables, instead of some larger unit being taken. It may be questioned whether there is not too much detail in the English census itself, but even if we reduce the Irish publication to that standard, 3,000 pages in each ten years would be saved, or 300 pages per annum.

"And besides the census publications proper there is a large 'supplement to the Thirty-fifth Annual Report of the Registrar-General,' which is a history of the vital statistics of England and Wales between 1861 and 1871, and is related to the population tables of these two years. It is not proposed to examine this any more than the census tables in detail, but attention is drawn to the extraordinary minuteness of the information, pp. 25—445 of the appendix, which consists of a series of tables showing the deaths at different ages from different causes of males and females separately in each of these ten years, these deaths being correlated with the *mean* of the population in each district, *i.e.*, the mean of the two census statements in the period. I cannot but think that all this detail has been printed and compiled with insufficient consideration of its absolute necessity. The movement of population is so great that the mean of the two census statements in many of the districts can hardly be a proper figure, for any scientific purpose, with which to connect the deaths in that district in the period. There is no doubt some excuse for detail here which does not appear to apply to the annual reports of the registrar-general in that the work is for ten years, but it should be discontinued unless a distinct account can be given of the reasons for descending so far with the details of disease at different ages, and unless it can be shown that the data are sufficiently accurate to enable the rates of mortality to be deduced. In the summary tables of this supplement (pp. 125—141) the rates of mortality are worked out for each age in the different districts, for whatever they may be worth, but no attempt is made to work out the rates of mortality from different diseases, and it is difficult to imagine of what use such information could be if worked out, the units being so small. And with regard to these rates of mortality themselves, can there be any necessity for going so far down as districts when the conditions of population are liable to such accidental variation? In any case the omission of deaths from different causes at different ages in districts would save about 420 pages in ten years, or 42 pages per annum.

"The total annual saving in these census publications would thus be about 340 pages.

"*Occasional Parliamentary Papers.*

"Besides the annual publications, there is a large number of occasional returns which it is more difficult to consider, as there can of course be no opposition to giving whatever information almost any member of the House of Commons chooses to ask for.

"There is no doubt, however, that many of the special returns thus moved for could often be dispensed with if the use of the annual and periodical statistics was more common. To take one instance, an elaborate return was obtained last session by Sir George Balfour upon the following order:

> "RETURN of Numbers and Ages of MALES, AREAS, and INHABITED HOUSES, Classified under Counties, Registration Counties, Lieutenancy Subdivisions, Petty Sessional Divisions, Cinque Ports, Stannaries, Superintending Registration, and Registration districts, and enumeration Districts, as far as the Reports of the Census can supply, with any information available connected with the Militia Acts, with the Military Divisions, Clerks of Lieutenancy, &c.
>
> "Similar RETURN for Ireland.
>
> "And, similar RETURN for Scotland.

"The whole of this return occupying 321 pages, is simply a reprint of certain columns of the census tables. It cannot have been required at all for the information of those using it, for nothing could be easier than simply to take the census volumes and pick out the columns selected. Less objection could perhaps be made if the information in the separate columns had been in different parts of the census, but in point of fact the return follows the same order as the census, and it could have been manufactured by the simple expedient of taking a copy of the census, drawing a pen through certain columns, and handing the sheets to the printers. But the copy itself thus corrected would have been as simple and intelligible, and as easily followed as the return. No doubt the return has the advantage of including England, Scotland, and Ireland, in one volume, but if the entire census tables had been smaller in bulk and uniform for the three kingdoms instead of there being a separate census for each, this reason or excuse for a special return would not have existed.

"The above return is only referred to as a conspicuous instance of the evil. One result of greater condensation in the statistics, and of harmonising them more than is now done, should certainly be to enable appeals for special returns like the one referred to, to be resisted, and to spread the practice of consulting the regular publications instead. It ought to be added, that, besides the waste of printing, the trouble to a department of even the simplest of these special returns is always considerable. Whatever has to go before the House of Commons necessarily occupies the best workers in an office, even to make sure that the matter is a simple one; and the more those special returns, which tell nothing but what is already in the books, are diminished the better.

"*Summary and Conclusions.*

"A few of the results of this long examination may now be stated. To begin with, in respect of duplicate and apparently excessive printing alone, the following table shows the number of pages which have been marked as requiring explanations in proof of their usefulness to the public:—

	Number of Pages Examined.	Number of Annual Pages of Statistics.	Number of Annual Pages Marked.
First Group—			
a. Poor law reports and papers	1,580	912	494
b. Local taxation	777	572	170
Second Group—			
The population statistics	3,853	2,455	1,319
Third Group—			
Education statistics	2,879	1,602	1,557
Fourth Group—			
Judicial and prison statistics	3,546	1,857	1,355
Fifth Group—			
Miscellaneous publications	2,987	1,171	965
Sixth Group—			
Finance		98	86
Seventh Group—			
Board of Trade publications, &c....	3,645	2,944	930
Additional Group—			
Periodical publications	10,276	868*	340*
Total	29,543	12,479	7,216

* In these cases only the *annual* equivalents have been entered. These periodical publications being decennial, the pages of statistics reckoned decennially would be 8,680, and the pages marked about 3,400.

"In addition it has been suggested that many of the occasional returns would probably be unnecessary if the defects in the regular statistics can be got rid of, and that there are also masses of printed matter, accounts, reports, and records of the transactions of departments, into which also inquiry might usefully be made. Nor is this question of mass at all one of mere surplusage, not affecting the quality of the good work embedded in them. The mass is a real and formidable difficulty, as was suggested in the introduction to this inquiry, in the way of investigators making use of the statistics, and still more in the way of the popular and current use of statistical volumes. The compilation and printing of masses of matter has also a tendency to injure the better parts of the work. Those engaged are overwhelmed with detail instead of being allowed to reserve their strength for the task of editing the statistics, and presenting only the minimum required in the most convenient shape for public use. They are apt to forget in inserting each new table and heading, always to ask themselves what the thing is designed to show, what people and interests require it, and whether the data are really of a nature to throw light on the new point.

"It has also been shown that there are numerous cases of want of correspondence in the data. One of the principal of these defects is the want of correspondence between English, Scotch, and Irish statistics on the same subject. In regard to population, pauperism, education, and judicial statistics, it has been shown that the arrangements in the three countries differ, that for instance in regard to pauperism there are differences in the way of stating the number of paupers, ages, and expenditure; in regard to education, the ages of children at school are stated in different ways; in regard to population and health statistics, various classifications of disease are employed; and in regard to judicial statistics, there are not only differences in the mode of recording criminal cases, but the whole framework is so different, especially as regards civil business, that no comparison can be made. And this is only one specimen of the kind of want of harmony in the statistics. The variety of the classifications of disease in various statistics in England alone is very great; the ages of paupers and criminals, and of children at school, are not given in such a way as to compare with the census tables; the statistics of wrecks are given as respects foreign wrecks for a year terminating at a different date from the year employed in the statistics of shipping. There is also a great tendency to amplification of certain subjects which are properly dealt with by one department, in the publications of a special department, as for instance in the development of trade statistics relating to animals alone in the report of the veterinary department of the Privy Council, in similar developments in the customs report of matter which is also properly in the annual statement, and in the amplification at the Mining Record Office of the statistics of mines. The whole effect, coupled with the excessive mass of the volumes, is to make the national statistics a bewildering labyrinth instead of a clear record from year to year of the facts relating to the life and economic welfare of the nation which are capable of being numerically stated.

"The mere statement of the defects suggests, it is believed, to some extent the procedure to be followed in providing a remedy. The first step ought to be a treasury or parliamentary inquiry into the nature of the mischief, which would itself have a great effect in checking some of the worst evils. The departments which now err by excess would probably do something to diminish the evil in their own case, when the general result was brought home to them. Some of the more striking discrepancies of method might also be remedied in this way.

"Such a committee, when a clear view of the evil had been brought before it, and had heard all that could be said on the subject by the various departments responsible for the statistics, would also be able to advise what permanent measures should be adopted to promote a systematic improvement and prevent a fresh growth of the evils now complained of. It is not considered expedient to discuss here what these permanent measures should be, and in any case opinions which could now be formed would probably be liable to modification in the course of a careful inquiry into the facts such as is proposed.

"*November*, 1876. "R. G."

APPENDIX A.

LIST of PAPERS relating to LOCAL TAXATION issued annually.

ENGLAND AND WALES:

1. Abstract of Local Taxation Returns for the year (containing Receipts and Expenditure of Authorities for the better Local Management of the Metropolis; Urban Sanitary Authorities; Rural Sanitary Authorities; Port Sanitary Authorities; Authorities for Lighting and Watching Parishes under 3 & 4 Will. 4. c. 90; Commissioners of Sewers; Drainage and Embankment Authorities; Burial Boards; Church Rates; Markets and Fairs; Bridges and Ferries; Harbour Authorities).
2. Abstracts of County Treasurers' Accounts.
3. Municipal Borough Accounts.
4. Highways, Abstract of Receipts and Expenditure of.
5. Turnpike Trusts, Abstract of Income and Expenditure of.
6. Report of the Metropolitan Board of Works.
7. Annual Accounts of the Chamberlain of the City of London.
8. Metropolitan Police, Accounts of sums received and expended on account of.

SCOTLAND:

9. Turnpike Trusts, Abstract of Income and Expenditure of.

IRELAND:

10. Local Taxation Returns (containing accounts relating to the Grand Jury Cess; Fees, &c., received by Clerks of the Peace; Fees, &c., received by Clerks of the Crown; Petty Sessions Stamps; Dog Licence Duty; Dublin Metropolitan Police; Court Leet Presentments; Harbour and Pier Authorities; Inland Navigations; Arterial Drainage; Town Councils; Town Commissioners under various Acts; Lighting and Cleansing Commissioners; Burial Boards; Pawnbrokers, Fees paid by; Bridges and Ferries).

UNITED KINGDOM:

11. Mercantile Marine Fund.
12. Pilotage.

APPENDIX B.

LIST of PAPERS relating to IMPERIAL FINANCE issued annually.

Army Estimates.
Army Purchase Commission ; Estimate.
Fortifications (Defences Loan) ; Account.
Military Savings Banks ; Account.
Fortifications, &c. ; Account.
Army (Manufacturing Establishments) ; Accounts.
Army ; Appropriation Account and Statement of Surpluses and Deficits.
Military Forces Localisation ; Appropriation Account.
Army Purchases Commission ; Appropriation Account.
British Museum ; Account.
Civil Contingencies Fund Accounts.
Civil Services and Revenue Departments ; Estimates.
Civil Service Estimates ; Grants in aid of Local Rates.
Civil Services and Revenue Departments ; Appropriation Accounts.
Civil Services ; Statement of Excesses.
Consolidated Fund ; Abstract Account.
Greenwich Hospital and School ; Estimate.
Greenwich Hospital and School ; Statement of Excess.
Greenwich Hospital ; Accounts.
Greenwich Hospital and School ; Appropriation Account.
Government Insurances and Annuities ; Account.
High Court of Justice ; Account of Receipts and Payments.
High Court of Justice ; Chancery Division ; Receipts and Expenditure.
National Debt (Savings Banks) ; Account.
National Debt (Savings Banks and Friendly Societies) ; Accounts.
National Debt (Annuities) ; Account.
National Debt (Military Savings Banks) ; Account.
Navy Estimates.
Navy ; Appropriation Account and Statement of Surpluses and Deficits.
Navy (Victualling Accounts) ; Returns of.
Navy Accounts (Shipbuilding and Dockyard Transactions) ; Balance Sheet and Accounts.
Navy Accounts (Manufactures and Repairs in Dockyards) ; Balance Sheet.
Naval Savings Banks Accounts.
Navy (Programme of Works).
Navy ; Sale of Stores.
Cornwall, Duchy of ; Account.
Lancaster, Duchy of ; Account.
Isle of Man ; Account of Revenue and Expenditure.
Pensions Commutation ; Sums advanced.
Public Offices—Superannuations ; Accounts.
Greek Loan ; Sums issued and repaid.
Russian Dutch Loan ; Sums paid and applied.

Sardinian Loan; Sums issued and received.
Irish Reproductive Loan Fund; Account.
Post Office Savings Bank; Account.
Public Works Loans; Estimates.
Public Work Loan Board; Report.
Merchant Seamen's Fund; Account.
Seamen's Savings Banks and Money Orders; Accounts.
Post Office Telegraphs; Capital Account.
Sinking Fund; Accounts.
Woods, Forest, and Land Revenues; Abstract Accounts.
Treasury Chest; Account.
Revenue (United Kingdom); Return of Taxes, &c., from which raised.
Public Income and Expenditure.
Finance Accounts of the United Kingdom."

EXTRACT FROM MINUTES OF EVIDENCE.

Tuesday, 5th August, 1879.

" Present:—

" The Right Honourable Hugh C. E. Childers in the chair.

" Mr. Shaw Lefevre, M.P.	Mr. T. H. Farrer.
" Colonel Romilly.	Mr. R. E. Welby, C.B.

" Mr. Carmichael, *Secretary*.

" Mr. Robert Giffen examined:—

" 1132. (*Chairman.*) The committee have had before them a memorandum by you which has been printed, dated November, 1876, on the compilation and printing of the statistics of the United Kingdom, to which their attention was drawn by the Treasury in their minute of appointment. In the opening paragraphs of this memorandum you point out that, owing to the gradual growth of statistical compilation in England, 'There has been no deliberate determination beforehand by a competent authority of what statistics it would be desirable to collect, and of the proportion of labour and cost of printing to be expended on each branch of statistics according to its relative importance. On the contrary, statistical offices have been permitted to grow up in each department of government. Each ministry has been allowed to say for itself what statistics it would have, and how it would collect them.' You point out that this process has also brought the inevitable disadvantage of a want of plan. 'A species of accident has determined to a large extent the proportion given to certain statistics in the official compilations,' and that 'the independent action of different departments has prevented attempts at so framing their statistical tables as to be convenient for comparison.' Further on you say that you think these evils quite sufficiently accounted for by the fact that in these statistics 'so many diligent workers are left almost without control, and especially without control from any quarter which can look to the proportion of the whole work.' In the closing paragraph of your memorandum, after instancing in some detail on the evils you have enumerated, you suggest that a treasury or parliamentary committee would be able to advise what permanent measures should be adopted to promote a systematic improvement, and prevent a fresh growth of the evils complained of. I have before me here also some rough notes by you dealing with certain suggestions that have been made to us by our secretary towards supplying the intercommunication and general control in official statistics to which your memorandum points. Those suggestions you quote in the following words:—'First, that there should be an annual statistical register, containing all tables really required for national or parliamentary purposes as distinguished from information required for departmental purposes only. (2.) That this register should be issued by a board, composed of chief permanent officials of different departments, who should all sign it. If the first is not practicable, the second, it is urged, is at least necessary, whatever form the annual publications may assume.' With regard to the first of these suggestions, you point out a serious difficulty; you say, 'Many of the statistical publications are delayed so long, that those relating to a particular subject, much less the whole together, could not be brought out in a particular session. The Board of Trade publications are brought out early, but the annual statement of trade is still about seven months after the year to which it relates; pauperism a year behind; English population statistics eighteen months and more, and comes into session later than others; Scotch population statistics still later; local finance statistics very late. Statistics relating to the same year appear in two and perhaps three or four different sessions. If you are to have an annual register, you must either wait for the last publication or have a double set of references and arrangements for binding, one referring to sessional papers, the other to your register. There would be confusion through people 'binding' on different principles, and probably the whole thing would break down.' I do not quite see the force of your conclusion, that if you have an annual register you must wait for the last publication. You are probably acquainted with the *Annual Register for Victoria?* That is published in separate parts, and by no means simultaneously. As soon as the information required for the volume dealing with one branch of statistics is obtained from the department concerned that volume is presented and published; and I gather from the paper of suggestions we are discussing that the register was to consist in the same way of separate volumes for the principal departments. However, speaking of this delay, you proceed to say: 'I think the delay a curable one, and that strong pressure should be used to accelerate the publication of all statistics. The delay probably arises from the attempt to include something in the volume which could really be dispensed with, having regard to its main purpose, from an arrear having once been permitted which would require some extra energy to overcome, or from some defect in organisation, such as doing work over again with fresh data when the data of periodical returns for shorter periods than a year would answer.' Would you be good enough to explain in detail the accelerations that have been accomplished at the Board of Trade which you quote as instances?—I think the first instance I have mentioned here is the agricultural statistics. During the last three years at the Board of Trade the publication of the agricultural statistics has been brought forward from the month of January, in which month it used to take place, to the September previous, and one of the principal means by which that was effected was the omission from the return of certain details relating to the statistics of agriculture in foreign countries, for which formerly the return at home had been made to wait. Some pains were also taken to accelerate the work, so that we really could come out in September; but still the principal practical difficulty which I found in the office was this, that in order to bring into this return certain foreign statistics, the whole return was made to wait from September till January. Having considered the question, I brought it before the Board of Trade, whether that was a sufficient reason for delaying the publication of our agricultural statistics, and it was decided that it was not a sufficient reason; and that being once decided, we had no difficulty whatever in bringing out the return in September, to the great convenience of the agricultural interests, I believe.

"1133. Have you had any other acceleration?—Shipping was another case. The annual statement of navigation used to come out in July or August; formerly I believe it used to come out in December; and apart from some effort which was made in the office to accelerate the work, by arranging the work and pressing it forward, one of the chief means by which that acceleration was accomplished was to provide that in the monthly returns which we get from the collector of customs, they should give all the details which were necessary to make up the annual returns. Previously they had made a return which was quite sufficient for publishing the monthly returns of shipping, but when you came to the last line in it, certain countries were put into one line, instead of the details for each being specified, and when we came to the annual return for which we require all the details of the other countries, the practice was formerly to go to the collectors of customs again, and get them to specify for the annual return the detail of those countries. What we get now is a simultaneous return showing all the details. I may say that, to some extent, I am indebted to the customs for an improvement upon what I projected myself, because all that I contemplated was to get a specification of that detail at the end of nine months, which would have enabled us to have worked it up for the annual return, but the customs immediately suggested that it might be much more convenient that the collectors every month should send us that detail, and I must say that that arrangement has worked very well indeed. We have no difficulty now in getting out the annual return of shipping in March. There has been some pressure to get the clerks to do the work, but in the main all that was done was a little alteration of the routine.

"1134. Have you any other case?—Another case was that of corn prices, the weekly statistics of the average price of corn. Those are published in the *Gazette* of Tuesday evening, and formerly that was the first publication that took place. The main thing that was done here was to arrange for the early publication of the return. It was found in the office that, necessarily from the mode in which the work was done, the return was prepared upon the Saturday. That was a convenient day to prepare it, and as it was always finished upon the Saturday, it simply lay in the office of the Board of Trade all the Monday, and was not published at all until Tuesday evening in the *Gazette*. I submitted to the Board of Trade, and it was agreed to, that we might at once publish the returns, and now the newspapers have it all of them in time for publication on Monday morning. There was really nothing done there except the actual publication of the return as soon as it was ready.

"1135. Is there any other case?—I may say that emigration, I think, was rather an important case, as it was really the first case that we had, and that was simply due to the rearrangement of the work and pushing it forward with a little more energy.

"1136. Have you any further suggestion to make for hastening the publication of any particular returns in other departments?—I do not like to make suggestions with reference to the statistics of any other department as to the mode in which they could hasten their returns; I do not think it would be quite my part to do that, and I have not got the detailed information necessary as to what particular arrangements or rearrangements could be made. But it seems quite clear that there is nothing in the nature of any of the data of our official statistics to justify the great delay which takes place.

"1137. May we assume that, speaking generally, the difficulty which you have raised to an annual publication of national statistics on the ground of irregularity in the compilation of the returns is only a partial and immediate difficulty, and one which might be removed?—I think it is a removable difficulty if sufficient pressure is exercised upon all the departments. I can see no reason in substance in the nature of any of the other statistics why they should be late. Nothing of that kind has ever been suggested to me, and I have been acquainted with some of the proceedings of this committee.

"1138. Are you also of opinion that, apart from its bearing on the publication of an annual register, the present delay is of itself a serious evil, and one which it is most desirable should be removed?—It is a most serious evil indeed. I am able to speak of it from an outside point of view altogether. I am quite sure that many statistics in which the public would take an interest, and which would be criticised and discussed, are overlooked very much because the departments do not get them out in time for them to be discussed properly.

"1139. In these notes you next suggest that 'apart from a formal register, something perhaps could be done in the way of doubling up scattered publications. Mining industries and factory statistics, for instance, might perhaps be advantageously included in a miscellaneous trade volume of the Board of Trade, which would include other trade statistics, besides shipping, imports and exports, and railways, which are large enough for separate volumes. Lunacy might go with judicial statistics. Many of the separate prison publications might also be curtailed, and their contents incorporated in judicial statistics. Were this done we might have an approach to the fact of the statistical register, without the name, in the shape of the annual volumes of trade and shipping, a railway volume, a supplementary miscellaneous trade volume, population statistics, judicial statistics, education statistics, finance statistics, and Local Government Board statistics,' would not this be, not only an approach to, but an arrival at, an annual register, conforming in all respects to that, for instance, compiled in Victoria, and substantially the same as that sketched in the suggestions we are discussing?—I think that might be substantially very much the same thing.

"1140. Next in order, however, you point to the difficulty of making the register complete, arising from the division of the United Kingdom into three countries. This does no doubt present a difficulty in harmonising the returns for purposes of just comparison. But is it not the case that for many branches of statistics the Irish returns are based on the same forms as the English?—That is so.

"1141. The real difficulty then is with the Scotch; do you think this difficulty insurmountable?—I do not think the difficulty absolutely insurmountable, because I think that one of the recommendations which this committee might make would be that the Scotch returns as far as possible should follow the forms which are followed for the same objects in the English returns, that this is a case in which the smaller parts of the United Kingdom should follow the main part of the United Kingdom.

"1142. You next say in this paper, 'I am not sure that I would approve of attempts to make a formal register, at least, not at present, though it is desirable you should have the thing as much as possible. There are certain advantages in having separate volumes, entirely independent, which form a series from year to year.' But assuming that the annual register took the shape I have indicated, each volume would be entirely independent and form a series with its predecessors. In Victoria the parts of the register entitled, for instance, 'interchange,' 'finance,' 'mineral,' and so on, are continuous from year to year. If the register was constructed on these lines should you still feel that it is premature to aim at such a publication? And if so, would you give us the reasons which lead you to think so?—I think to some extent we are in agreement, because if you have got the thing in the annual volume, I do not attach much importance to their being all parts of one annual series. Provided the people have their statistics in one or two great groups, and can refer to the volumes, there is no occasion for numbering 1, 2, 3, 4, 5, or 6, the statistics of the particular year; I do not see that you gain very much by so doing. If you propose to make them parts of a series of a particular year any little obstacle that may turn up would prevent your publishing them all in the same session; difficulties might arise in the future that would make it very difficult for the arrangement to be carried out; and yet substantially you might have it carried out without aiming at a formal register.

"1143. You mean that they should not be numbered 1, 2, 3, 4, and so on?—What I understand you to mean by a register is, in fact, making them parts of one volume almost, as it were.

"1144. And the appearance of No. 7 after No. 9 you think would be inconvenient?—Not only would it be inconvenient, but it would be a serious inconvenience in this way, that the House of Commons would not permit you to have them coming out in different sessions, and that after a certain time the House of Commons might, and really would come down upon you very severely, and say, we cannot have this going on. Unless the volume is published by a certain date, you had better not present it to parliament for that session, it must be presented in another session. I may say that when I went to the Board of Trade we were in fault in this very matter; personally I found it very unpleasant indeed.

"1145. You next proceed to say, 'The impression that an annual register is practicable seems to arise from a desire to exclude merely administrative information from the national statistics, but this question of administrative information only applies to some volumes, viz., to population, to education, and to local government. All other statistical subjects are dealt with for general public use, not for administrative use, especially all Board of Trade publications, shipping, trade, railways, emigration, agriculture, wrecks, railway accidents, corn statistics, cotton statistics, &c., &c., and the same is the case with judicial statistics.' The question of administrative information applies also to health statistics, does it not, which appear in other returns than those of population, and I think you will find it applies also to certain tables in the judicial and criminal statistics, such, for instance, as the inspected houses table; but speaking generally, the question of administrative information would only apply to certain volumes. Dealing with those volumes you say, 'I think also the assertion that certain details of population, education, and local government are required for administration is very weak.' But leaving for the moment that question as to the validity of the plea raised by the departments, that such and such detail is required for administration, do you think that the suggestion is a good one, that only such statistics as are of continuous interest to Parliament, or to a considerable section of the public, should be presented to Parliament?—I think that the question of what should be presented to Parliament might change from time to time, that is to say, Parliament might require things to be presented for the purpose of supervising the administration; but looking at the question from a statistical view only, I think it is most desirable that the object for which any statistical publication is made should be carefully considered, and that you ought not to mix up a mere matter of administrative convenience within the office with the publication of your statistics, that you ought to keep these objects very distinct indeed.

"1146. Would not such a weeding of statistics tend to clear the ground for that 'broad knowledge of statistical data, and of the main conclusions from statistical facts' which, in your memorandum, you say 'should be by some means or other the common possession of public men'?—I think that is quite certain. At present there are several branches of statistics which I am quite sure I should have been much better acquainted with than I was before I came to the

Board of Trade if the publication of those statistics had been in a better and more compact form. For instance, in the preparation of statistics it was really a difficulty to me, as a busy man, although I felt great interest in statistical questions, to make acquaintance with statistics of population, on account of the very great bulk of the volumes and the great mixture of what I call unnecessary detail. This was also the case to some extent with judicial statistics.

"1147. Do you think such a separation and weeding of the statistics of which we have been speaking a practical one?—I think that it is quite possible; and even now several of those departments which mix up administrative uses with other uses of statistical publications would find that a formal separation between what was only required for general use and what was required for administrative use would be an advantage for the department itself. It would be an advantage to keep distinct the details which were published for a totally different purpose from what the main statistical facts were published for.

"1148. Taking certain branches of statistics, would you, speaking generally, instance to the committee how you would proceed to make the distinction?—That would be very much a matter for the editor of each volume of the statistics. He would have to consider which were the more important tables for general use, and then I think the proper plan would be for him to put into an appendix, quite away from the other matter altogether, what he thinks is required for some special use. He ought simply to make clear to his own mind what he thinks are matters of general importance, and what are matters of either administrative or some other special use.

"1149. Returning now to the departmental statistics, you suggest that where the detail is excessive, even for administrative purposes, 'Real improvement in these cases might come from strengthening and consolidating the statistical departments, perhaps by putting them in the hands of an officer who was more than a statistician, and had other duties, and consolidating all the statistics of a great department, say, for instance, of the Local Government Board into one.' Will you explain a little more fully what you have in your mind on this point?—I had a little in my mind when I was writing the state of the statistics of the Local Government Board. I think it was put before the committee, with reference to the population statistics, that certain details in those statistics were required for the use of some other department of the Local Government Board. It occurred to me that as the registrar-general published the population statistics, and as you had also statistics published by the Local Government Board in another department of the Local Government Board, if you were to put those two departments into one under an officer who should be responsible for all the statistics of the Local Government Board, probably you would have them better edited and better considered as to what the use of each particular branch of statistics should be: that at present you have certain things published by the registrar-general which are alleged to be required by the other departments of the Local Government Board, whereas, if the whole matter was in charge of a superior officer of the Local Government Board very likely much of that information would be instantly available for that board, without publication at all, because the whole thing would be under one management as it were.

"1150. Now, turning to the second suggestion made by our secretary, Mr. Carmichael, namely, that the annual statistics presented to Parliament should be issued by a board composed of permanent officials representing the different departments, you point out that there are really only three or four statistically important departments, and you sketch three possible courses for harmonising their returns. You say in your paper, 'The matter being so much in a nutshell, there are various ways by which harmony could be introduced into statistics. There is the simple process of amalgamation. There would be no real difficulty, I think, in attaching population and judicial statistics at least to a central statistical office. Population and judicial statistics are done by a machinery entirely separate from the usual staff of the Local Government Board or Home Office. Local finance statistics could not be so easily placed in a central office. An objection to amalgamation would be that you might have too much concentration. A certain rivalry and competition in statistical offices may be good. You want more statistical brain than what perhaps could be concentrated in one office; but a central office with all that work, assuming the advantages of it to outweigh the disadvantages, would probably harmonise all its own statistics, which would be nearly the whole body of statistics, and would have sufficient prestige to control all others.' If I understand this rightly, the idea would be to make the registrar-general's office the central statistical office, and you think that the judicial statistics could be easily separated from the Home Office and handed over to such a central department. Supposing such a scheme adopted, what would become not only of the local finance statistics, but of the statistics relating to pauperism, education, trade, navigation, agriculture, &c.? Do you think that the departments administering these branches of the public service would be prepared to hand over the compilation of their statistics to the registrar-general?—I by no means suggest that they should be handed over to the registrar-general. If you are going to amalgamate, it might be that you would hand over the registrar-general's statistics to some other office. It is entirely a suggestion, that you might put, say two or three offices into one. With reference to the question of most of the statistics being, in fact, already in the hands of one or two offices, I should like to call attention to a table on page 37 of my memorandum, the second column is, 'Number of annual pages of statistics,' which I had under consideration, and it would appear from that that out of about 12 000 pages of annual statistics you have in the first two groups—the poor law reports and papers, and local taxation, and the population statistics—about 4,000 pages of statistics, that is about one-third of those 12,000 pages. All these are really dependent, with the exception of the Scotch and Irish publications upon each subject, upon one minister, that is to say, the president of the Local Government Board. Then the judicial and prison statistics, amounting to about

1,800 pages, are entirely dependent upon the Home Office; of course with the exception of what may be in the hands of the Scotch and Irish statisticians. Then the other large group is that of the Board of Trade publications, constituting about one-fourth of the statistics which are now published. If you deduct these statistics, viz., those of the Local Government Board, the Home Office, and the Board of Trade, you leave indeed very little besides for all the other statistical offices put together, and that is the reason of my suggestion that if you wish to amalgamate the statistics, in fact what you have got to do is to amalgamate two or three, or perhaps four offices at the outside, and what is left besides that is really very little indeed. I must not be supposed as advocating the suggested amalgamation by any means, but I wish to bring forward in a strong way that really the statistics already are in comparatively few hands, so far as ministerial responsibility is concerned.

"1151. But even then do you think that amalgamation is a possible arrangement?—I think that you might amalgamate to some extent, and that it would be a possible arrangement for instance, to put the registrar-general's statistics under the Board of Trade. That is actually an arrangement which is carried out in other countries. In Prussia and Italy they have the population statistics under the central office. I think in Prussia the central office is attached to the minister of the interior, but in Italy and also in France the central office is attached to what we would call the Board of Trade, the ministry of agriculture and commerce, and those offices really have the population statistics under their care.

"1152. The second course which you suggest is a board, and you say, 'Another mode of harmonising the statistics which seems possible, owing to the small number of large statistical offices, would be by means of a board consisting of representatives of these three departments, with a representative of the Treasury, and perhaps an outsider. It would only be cumbersome to have statisticians from other departments, or high officers from them, these departments having each a little bit of statistics. The board might work, not because of its being a board, but because its members would themselves be responsible for the great bulk of the national statistics, and each for a very large part, and would be few enough to consult frequently. They would have authority enough to control the remainder.' The only difference between this and the suggestion of our secretary, as laid down in his paper, appears to be that you would further limit his board of not more than twelve to not more than five, on the very sound principle that the fewer there are on a board the more practical their deliberations, and the less cumbersome the machinery, and you consider that their joint authority would be sufficient to control the smaller departments. Do you see any practical objection to this plan, No. 2?—I must say that I do not see very much practical objection to No. 2; that you might associate a gentleman from the Local Government Board and a gentleman from the Home Office, with an official from the Board of Trade, and that those three people would be responsible for so much of the statistics that there ought to be no difficulty in their agreeing and making some harmonious arrangement about any points of difference that would arise. I should suppose that in each case you would have to leave the absolute control of all matters to the minister upon whom each officer was dependent, and if this committee think it important to recommend it, there really is so little difficulty in agreement in these matters that I believe the arrangement might work; and with the assistance of a gentleman from the Treasury, and perhaps another gentleman, I think you would have a committee which could also make very good recommendations for the harmonising of any such statistics as would not be directly under the control of members of the committee.

"1153. What about education?—Education is only one subject, and really a comparatively small subject. The quantity of educational statistics that really would be required for public information would not occupy very many pages.

"1154. Then there is the third plan, which you describe thus: 'A third alternative would be for a central statistical officer dependent upon a particular minister, viz., the officer in my present position (whom I mention naturally, as, in addition to a mass of work like that in other offices, having the duty of digesting already cast upon him) to receive in addition authority from the Treasury to report upon particular defects in statistics, or to be associated with some officer of the Treasury in that duty. This might also be a working alternative, at least for a time, just because the great departments of statistics are few. There are only a few problems in harmonising statistics to be solved.' Supposing this plan were adopted, and the officer holding your present position were authorised by the Treasury to report upon particular defects in statistics generally, to whom would he report? Should he report through the Board of Trade or direct to the Treasury? And would not a difficulty arise from an officer belonging to one department having treasury authority to criticise the statistics of all the others? And would not the Treasury, as a rule, have some difficulty in enforcing on the other departments such of the Board of Trade officers' criticisms as they might wish to see adopted?—That is really a matter upon which I feel a great difficulty in expressing any opinion, because I am not so well acquainted as those who have been longer in the Government service with the relations of officers to a particular minister. I was merely referring to that as a question which had been brought to my notice. I think something to the same effect has been suggested by Mr. Welby; and assuming that any practical difficulties could be got over, I think that it is an arrangement which might work; but how the difficulty as to whether the report should be to the Board of Trade, or whether the report should be to the Treasury is to be got over is a point upon which I feel that I can hardly give an opinion.

"1155. Returning to your suggestions about avoiding delay, do you think that having no immediate interest or responsibility in the statistics as a whole, the departments would be ready to make the efforts necessary to bring their work up to time merely on the criticism of an officer in another department. Do you think such an arrangement would satisfactorily supply that 'control which can look to the proportion of the whole work;' to the want of which you so largely attribute in your memorandum the fact that the annual statistics of the country are such a huge and forbidding mass of figures?—I think that the arrangement would supply all the objects required, for some time at least, and that such an officer of the Board of Trade associated with a gentleman from the Treasury who took an interest in the work might be able to make a beginning and prepare for something more complete. It would be quite impossible for anything to be done except with the goodwill of all the departments. Any such officer would have to be very careful and very delicate in making any suggestions, but I think something might be done by continual perseverance and continual efforts to work out a plan. This plan would also have the advantage of altering least the existing arrangements, so that there would be hardly anything to undo if it was found not to work and it was considered desirable to adopt some other plan.

"1156. But speaking purely as a practical statistician, do you consider that this would be as working an arrangement as your second plan of a small board?—I would hardly be prepared to express an opinion in competition between the two plans. My object was rather to give information to the committee about the circumstances of the case, and I think I can hardly say which of the proposed three plans I would like to express an opinion in favour of.

"1157. (*Colonel Romilly.*) I understand that one of the proposals which you have made in this paper is, that there should be a small board constituted of representatives of the most important departments that have relation to statistics?—Yes, that is one of the proposals referred to in the paper; but I should wish it to be very clearly understood that none of the proposals are exactly proposals of mine; they are suggestions or proposals which have come to my notice, and about which I have given a certain amount of information to the committee.

"1158. With reference to that proposal which you thought one which might be adopted, have you considered which are the principal departments that would have representatives on such a board?—The departments which I refer to are the Local Government Board, the Home Office, the Board of Trade, and the Treasury. I do not see that there is any other department which is sufficiently large, or which has under it a sufficient quantity of the different subjects of statistics, that it ought to be represented upon such a board.

"1159. With regard to the Board of Trade, could you mention the statistics which you consider are specially collected and collated by the Board of Trade?—There are two branches of the statistical department of the Board of Trade. Of course we have the work of abstracting, and we have the work of compilation. With reference to the work of abstracting, we have three abstracts, one for the United Kingdom, one for the colonies, and one for foreign countries. We have also a volume of miscellaneous statistics, and a volume of statistics relating to the colonies. These are the volumes that we now produce which are in the nature of abstracts or digests. Then in addition to that, the compilation which is done in the statistical department of the Board of Trade includes the corn accounts, that is to say, the returns of the average price of corn, which are now published every week in the *Gazette*, and in addition to which we give regularly a large amount of information to the tithe commissioners. Then there are the returns relating to emigration and immigration, which I have already referred to; the agricultural returns, that is to say, the agricultural statistics of Great Britain (the agricultural statistics of Ireland being a separate matter); the returns relating to the railway capital and traffic; the monthly accounts of navigation; the annual statement of navigation; certain weekly and monthly returns relating to the statistics of cotton; and in addition to all these, the monthly and annual statements of imports and exports, whose compilations is now specially a subject for the consideration of this committee.

"1160. Will you particularise any of those statistics which are collected by the Board of Trade in detail?—They are all collected by the Board of Trade in detail, excepting the monthly and annual statements of imports and exports which I have just mentioned.

"1161. Do you understand that the statement of the imports and exports is collected by the Board of Trade in detail?—I have just mentioned that with that exception we collect the detail of all the others that we compile. We collect all the details, and work them up, and prepare them, no doubt, to some extent through the officers of the other departments, as, for instance, we collect the statistics of agriculture through the officers of the inland revenue; but the forms and schedules are issued by the Board of Trade, and they come back to us, and we have access to all the details.

"1162. Do you consider in the case of the returns which are sent to you monthly by the collectors of customs, who return the whole of the shipping of the kingdom according to the form which has been agreed upon between you and the collector, that the Board of Trade collects those statistics in detail?—I certainly think that is the case, and that that is the kind of form of collecting statistics which every central office must have. A central office has no other means of acting except through such officers of each department as may be most convenient for them to utilise for the purpose. For instance, supposing that the population statistics were transferred to the Board of Trade, it would be necessary probably for the Board of Trade to collect the data through the Local Government Board, just as the Board of Trade now collects the data of the agricultural statistics through the department of the inland revenue; but the work would still be the work of the Board of Trade. I may mention another instance of this kind, and that is the corn returns. The data of those returns are partly collected through the officers of the inland revenue and partly through special officers who are appointed in a certain way by Act of Parliament; that is to say, the Universities of Oxford and Cambridge have the power of appointing the inspectors of corn returns in Oxford and Cambridge, and the London corn inspector is also specially appointed. The Board of Trade has nothing to do with the appointment of those officers, but still the Board of Trade is held responsible by Parliament, and is responsible, for the proper collection of those corn returns, although none of the people who collect them are in any proper sense of the word officers of the Board of Trade, except the comptroller of the corn returns himself.

"1163. Do any of the statistics which you collect arise out of the administration of the Board of Trade?—Except I think the wreck return, which is not under the care of the statistical department of the Board of Trade, and the return of railway accidents, which is also collected by another department of the Board of Trade, there are no other Board of Trade statistics which are in any way connected with the administration of the Board of Trade. All the statistics which we have are collected for the purpose of the statistics themselves; that is to say, the department is instituted for the express purpose of getting these statistics.

"1164. Turning to the statistical abstract for August, from pp. 19—93, could you explain the form in which the information arrives at the Board of Trade, and what is done with it at the Board of Trade?—The information arrives at the Board of Trade in the same form in which we get the information from the other departments; that is to say, we send out certain forms to be filled up, which come back to us filled up with the figures. In the case to which you refer we get the information from the department of the customs, which you represent.

"1165. Did you send out the forms in the particular case of those 70 odd pages?—I cannot recollect at this moment whether we actually sent out the forms or not. A proof of the tables as published in the abstract would be quite sufficient for a form.

"1166. Is it the rule at the custom house that the actual pages, as they are printed there, are taken from the book of the previous year, the first column having the pen drawn through it, the last column being a pasted column with the new figures in it?—Yes; no doubt that would be a proper way, and that is the way in which we get information for almost all the other parts of the abstract.

"1167. The return would go back for revision, then be sent to the printer, and it would be sent back to you, would it not?—No doubt.

"1168. With respect to all the statistical returns, is it not very much the case that the Board of Trade is at present in itself acting as a central statistical department rather than as a department which should be represented upon the board?—I do not think that that is so, because the Board of Trade, as I have just been explaining, has a very large amount of original compilation. In any case a central statistical department ought above all things to be represented on such a board.

"1169. I understand you to mean by compilation the tabulation or arrangement of the facts which arrive upon the forms?—Not only the tabulation and arrangement of the facts which arrive upon the forms, but the issuing of the forms upon which the facts are stated by the particular people who have to collect the data, and the criticism of those data from the very foundation by the Board of Trade. Take, for instance, the corn averages: These things come to us from about one hundred and fifty different gentlemen throughout the country; a return is made from each market, and that return is looked at and examined in the office of the Board of Trade, and finally the controller of corn returns publishes the return. With regard to the railway returns, we get a return of the capital, the traffic, and the working expenses from every railway in the United Kingdom under a special Act of Parliament. Every item in the return from each company has to be criticised and looked at in the office of the Board of Trade. I need not go through the work which is done in the way of compilation, but to give the committee an idea of it I may say that three-fourths at least of the regular statistical work of the statistical department of the Board of Trade—that is, the work which we have to do inclusive of special returns, tariff information, and miscellaneous commercial work—is the work of original compilation, and that only a comparatively small part of the staff of the office is engaged in the work of digesting.

"1170. With respect to these criticisms which you find yourself obliged to make upon those returns, do you not often find great difficulty in giving effect to the object which you have in view in your criticisms?—I do not think that we have found any special difficulty at all. I find that as a rule most of the officers, including those of the Treasury, are only too glad to listen to and adopt any suggestions that we may make to them, that in fact they constantly use forms which the Board of Trade issues for the purpose of its abstracts and for the purpose of the miscellaneous statistics, and I believe that that has already had a very beneficial effect in removing a great many difficulties in our statistics.

"1171. Have you practically been able to arrange the statistics in consequence of those criticisms in the form which you think most desirable for the public service?—I can speak from so very short a period indeed that I have hardly had sufficient experience to speak of it. I think, looking at the whole history of this abstract, and the miscellaneous statistics, speaking of the past history of the statistical department of the Board of Trade, it has done very considerable service indeed in harmonising and keeping the statistics together, and but for that you would have had matters in a much greater state of confusion than they are.

"1172. I am assuming that the Board of Trade at present, as you admit, acts as a central statistical office to control the statistics of all the other departments, you do not apprehend any inconvenience from their being represented on this board, or from their being on the same terms as the registrar-general, or the Local Government Board, or the Home Office, or Education Department?—I do not like to say that the Board of Trade acts now as a central statistical office with control over the others, because I do not think that we have anything which you could call control; but I do not see that there would be any inconvenience from an officer of the Board of Trade acting on a committee whose special duty was that of harmonising statistics. I think that possibly it might work well, for this reason, that in addition to this one work of compilation he has got so much of abstracting and digesting to do, that probably he would be the only officer upon the committee who would be acquainted with the statistics of the other departments, and would be able to criticise them effectually and to offer suggestions.

"1173. Do you contemplate that the Board of Trade should continue to perform all the functions with reference to statistics that it now performs whilst this other board which you propose to establish is in operation?—The proposal to which I am referring, I think, evidently contemplated that, and that there was to be no change.

"1174. (*Mr. Farrer.*) Taking the different subjects upon which you publish statistics, you have told us that you collect the corn statistics, and the next subject that you mentioned was the emigration statistics; those come to you, I think, from a totally separate department of the Board of Trade, which has to do with emigration?—They come to us, as I understand, from the principal emigration officers of the Board of Trade in the different ports.

"1175. Who are officers under an entirely separate department called the marine department?—They are entirely separate.

"1176. And they are not subject to you at all as a matter of discipline and control?—As a matter of discipline and control they are not subject to us. Occasionally questions have arisen with reference to which it has always been expedient that discipline should be administered, not by the statistical department, but by the marine department of the Board of Trade.

"1177. Consequently the marine department of the Board of Trade acts as your minister in the collection of those emigration statistics?—Entirely.

"1178. I think some time ago the emigration department published their own statistics?—Until about four years ago the marine department issued the emigration statistics.

"1179. First of all the colonial emigration statistics were issued, and then when that business was transferred to the Board of Trade, the marine department issued them?—The marine department issued them for several years, and then they were transferred to the statistical department.

"1180. Is it found convenient that the principal business of the emigration statistics should be transferred to the statistical department, away from the administrative department which collects the statistics?—I believe it was found a great convenience, as the statistical department had facilities for doing the work which did not exist in the other departments of the Board of Trade, and which did not exist in the emigration department of the Colonial Office.

"1181. Then again, the railway statistics, which were originally published by the railway department of the Board of Trade, were handed over to the statistical department?—The railway statistics seem to have been handed over to the statistical department for a considerable period before the time that I came to the Board of Trade.

"1182. Originally they were published by the railway department, and they were afterwards handed over to the statistical department?—Yes.

"1183. Then the navigation accounts, I think, were originally issued with the trade accounts, and were compiled to some extent as the trade accounts by ourselves; but that I presume was long before your time?—Previously to the existence of the navigation accounts branch, the navigation accounts were compiled exclusively by the customs; then they were transferred to the registrar-general of seamen, an officer of the Board of Trade.

"1184. That is the case, it was found in consequence of certain legislation that the marine department of the Board of Trade were enabled to get certain information concerning the *personnel* of the mercantile marine which the Customs were unable to get?—There was a return called Lord Colchester's return of the employment of vessels, which it was thought was more satisfactorily done through the office of the registrar-general of seamen, who had the means of telling, from his connection with the seamen, what the employment was.

"1185. The navigation accounts were then transferred from the Customs to the registrar-general of seamen?—I believe so.

"1186. At a subsequent date, after you joined the Board of Trade, there was a small committee I think, on which Mr. Lingen acted, to consider certain questions connected with the office of the registrar-general of seamen, and I think that committee recommended the transfer of the navigation accounts to the statistical department of the Board of Trade?—That was in 1876, immediately after I came to the Board of Trade. I found that this committee was sitting with regard to the office of the registrar-general of seamen. Mr. Lingen, and I think Mr. Hamilton, the present accountant-general of the navy, were on the committee; and that committee recommended the transfer of the statistical department of the registrar-general of seamen to the statistical department of the Board of Trade.

"1187. The registrar-general of seamen is entirely under the marine department of the Board of Trade, is he not, for the purpose of these statistics?—Yes.

"1188. In that case again the registrar-general of seamen acts under your direction although he is the servant of another department?—We get comparatively little from the registrar-general of seamen; but so far as we do get information from him he acts entirely as our agent just as the collectors of customs do.

"1189. So that both those officers in that case, both the officers of the customs and the registrar-general of seamen, act as ministers to you for the purpose of collecting these accounts?—Yes; we get our information through them.

"1190. Then we come to the agricultural statistics, these are collected by the Inland Revenue officers, are they not?—Partly; to be quite exact I ought to say they are collected for Great Britain by the officers of Inland Revenue, but as regards the Isle of Man and the Channel Islands we have to go through the Home Office to the governor of the Isle of Man and the governors of the different Channel Islands respectively. We do not in fact get them exclusively from the officers of Inland Revenue, though we get the largest part from those officers.

"1191. That was done by arrangement between the Board of

Trade and the Inland Revenue, and the Home Office, was it not? —Yes.

"1192. There is no great difficulty in that arrangement, is there?—There has never been the faintest trace of any difficulty. On the contrary we find that whenever any question arises the officials of Inland Revenue, as well as those under the Home Office, are disposed to give us any amount of help that we require.

"1193. The cotton statistics again are collected, are they not, through the medium of the officers of the Board of Customs and the railway companies?—The weekly return, that is the return of the imports and exports, we get almost exclusively from the officers of the customs, but the monthly return of the cotton carried to inland towns we get from the railway companies and from the canal companies, and to some extent from coasting steamers where necessary, under the Cotton Statistics Acts.

"1194. In all those cases you get statistics from the officers of other departments?—In hardly any case, I think, do we get statistics from officers who are exclusively employed by the statistical department for our purposes. I think in every case we have to resort either to the officers of some other department of the Board of Trade, or to the officers of some other department of the government.

"1195. So that a large part of the business of your department consists in compiling statistics which are substantially the statistics of other departments?—I estimate that as between the two, three-fourths of our work is compilation and one-fourth is abstracting, and so far as it is compilation it is the compilation of data primarily collected by officers of other departments. Of course an important part of our work in the office, though it does not take up much of the time of the junior clerks, consists in giving special information at the time when it is required, either by the president of the Board of Trade, or by the Cabinet, or by individual members of the House of Commons whom the president of the Board of Trade may sanction our giving information to. And also a considerable part of our more difficult work consists in answers to commercial questions which are referred to us, and the tariff work, and so on.

"1196. Do you think it important that the work of compiling statistics, and the work of abstracting statistics, should be united in one department?—I think to some extent it is very useful that the officer who is engaged in the duty of abstracting statistics, and publishing and digesting all the different statistics, should also have experience in compilation; and that unless he has great experience in compilation and great knowledge of the kind of difficulties that arise, his abstracts will not be so good or so useful as they might be.

"1197. Can you illustrate that a little?—I think that there is as good an illustration as there can be in one or two of the subjects which the Board of Trade has to deal with, and not specially the statistical department of the Board of Trade. For instance, railway accidents and wrecks and casualties, these are two cases as to which an outsider might think that it was a very simple matter that you should get a return of railway accidents, and a return of wrecks and casualties; but when you come to actual practice, I have had experience indirectly at the Board of Trade, and although those subjects are not under my care, I find that there are very great difficulties indeed in definition in both those cases; that it is not easy to define what a railway accident is, and it is not easy to define what a wreck is, and what a shipping casualty is. And in addition to that, when you come to make up tables of statistics in reference to these matters it is very important that you should know what is the object for which you are to use these statistics. In the returns of wrecks and casualties, for instance, you have to keep such points in mind as the geographical distribution of wrecks, the age of the ships, the manning of the ships, the nature of the casualties, and such matters; so that before you can make any proper abstract a subject-matter of that kind has to be kept in your mind, and I do not think that you can ever get proper abstracts made by an officer who has really had no experience in the work of compilation itself.

"1198. (*Mr. Shaw Lefevre.*) There is always a tendency in such statistics to include a great number of cases, is there not?—In many statistics that would be so. For instance, in railway statistics we have the utmost difficulty in defining what a railway accident is, whether it is an accident which occurs upon the property of the railway company, or an accident merely which occurs in the working of the traffic of the company; whether, for instance, if a man falls from a railway engine in a shed in the station, that is to be regarded as a railway accident or not. There are endless difficulties of definition, all of which should be met, and of which the abstracting officer ought to have some idea, and if he is not acquainted with the particular subjects, he ought to have an idea generally of what are the kinds of difficulty of definition in the original data of statistics.

"1199. The tendency being to magnify the accounts, and also to include year by year a great number of cases, the effect of which is to make the comparisons very misleading?—The tendency has been in that direction. There has been a tendency lately to include a great many more wrecks than were formerly included, because the Board of Trade, for administrative purposes, I believe, give a gratuity of 10*s.*, or something of that kind, for every casualty that is reported. This of course may be very convenient and very good for administrative purposes, but changes of that kind are very dangerous for statistical uses.

"1200. So that the comparisons year by year are misleading?—Yes. What I mean is that the abstracting officer ought to take into account all questions of that sort in framing his tables, as knowing what he has to get and knowing how the tables are to be used.

"1201. (*Mr. Farrer.*) Therefore you think it would be an improper step, and, therefore, a retrograde step to take any of those subjects away from either your own or any great department in a like position and to place them more entirely in the hands of the administrative departments that collect them?—I think it is a matter of very great importance indeed that you should bring the statistics into groups as it were. An officer in charge of several branches of statistics is more likely to look at the proportions of the different branches than if he has only one subject to deal with. If you have an officer with a particular subject-matter he tends to magnify it.

"1202. To return to those particular cases. You think that it would be a retrograde step to place the agricultural returns entirely in the hands of the inland revenue department, or the navigation returns entirely in the hands of the officers of the customs and the registrar-general of seamen and shipping?—It seems to me that there could be no motive for suggesting such a step at all; even if you did transfer those subjects to the inland revenue, and to the registrar-general of seamen, or to the customs, you would find a separate department erected in the inland revenue, or in the registrar-general of seamen's office, or in the customs, for treating these subjects, and you might as well have a department situated elsewhere and accustomed to handle statistical questions.

"1203. I asked you the question because there is a suggestion in some paper before the committee that the central department should eventually be confined to compiling the abstracts; you would not at all agree to that?—I do not think that that would be desirable at all, and really in my own experience I have found it of the utmost value that I should know what the definitions and the data of statistics are, and what all those figures mean, which it would be impossible for me to know very well, without having the work of compiling thrown upon me.

"1204. You inherit at the statistical department what is now left of the Board of Trade, of what used to be called the commercial department that advised upon questions of foreign trade. I think of late years there has been rather a disposition to increase the number of questions of that kind that are referred to you, has there not?—From the beginning there has always been a certain number of questions of that kind referred to us both by the Foreign Office and by the Colonial Office. Although the Foreign Office has now a special commercial department of its own, still certain questions arise in which the Foreign Office itself has to consult the commercial department of the Board of Trade, and questions arise in which the colonial department wish to consult the commercial department of the Board of Trade, and the tendency has rather been of late for those questions to increase. Both the Foreign Office and the Colonial Office show a desire to come to the Board of Trade. This has partly arisen through the tariff work or the getting of information about the tariffs of foreign countries having been entirely left in the hands of the statistical and commercial department of the Board of Trade. The commercial department of the Foreign Office and of the Colonial Office have never published any information relating to the tariffs of foreign countries, or to the tariffs of the colonies, but that information has been published from time to time by the statistical and commercial department of the Board of Trade, and that brings to it a certain number of questions which I am now speaking of more exclusively.

"1205. Can you mention two or three subjects which have been recently referred to you in one form or another, either with the view of giving evidence before committees of the House of Commons or in the form of a reference from the Foreign Office or the Colonial Office, or by the prime minister?—I may instance the hall-marking of silver, the Indian currency question, the wine duties, the sugar industries, and last of all, the Canadian tariffs have just been referred to us—and a very important reference it is—by the Colonial Office.

"1206. And the corn averages also?—Lately we have had to give a great deal of information about corn averages and agricultural statistics generally, in connection with the imports and exports and the prices of agricultural produce.

"1207. Do you see any advantage, or the reverse in these questions being managed by the same departments of the government that has had the management of the trade statistics and allied statistics?—It seems to me very convenient, in this way, that many of the subjects are so very much interconnected. One of the questions lately that I have had to give attention to was an inquiry as to foreign tariffs, which was made to me by a very important gentleman in parliament interested in the woollen trade. He and others interested in the woollen trade came to the Board of Trade to put certain questions with respect to the imports and exports of the woollen manufactures to the wine-growing countries, and they desired, at the same time, to have information respecting the tariffs of those countries; all that information at this moment is really in the possession of the commercial department of the Board of Trade, and if you were to split it up there would be no one place where members of parliament could call and get information with reference to the whole of the statistics of the trade, not only of this country, but of foreign countries, and the tariffs of those countries. all which they can now get at the statistical and commercial department of the Board of Trade.

"1208. Members of parliament are constantly applying to your office for information upon these subjects, are they not?—Yes; and for information upon a great variety of subjects, that is to say, upon a great variety of matters upon which the statistical department of the Board of Trade can give information. Personally, I may say that that occupies a great deal of my time, and that I have to see members of parliament and give them information upon various questions.

"1209. In that way you are both able to give them information directly, and also to prevent them from asking for useless information, are you not?—I think that, on the whole, the effect has been that if they find that they can get information which is already in the parliamentary papers, either in returns from the Foreign Office, or otherwise, and which I can show them, that to a great extent prevents them from moving for returns in the House; and when returns are moved for, it enables them to put in a form which is more convenient for general use.

"1210. So that if they want a return which is really a return that the office have, they get it put into shape before they move for it?—That is so; and I think that that is very useful.

"1211. Supposing each department, therefore, to manage its own department by itself, and that you had an officer over the department who was charged only with compiling abstracts, would he be equally fit for those duties which we have been discussing?—I doubt whether he would be equally fit for those duties, because people at the very time that they come for general information on any matter always come for great detail upon some particular point or other, so that it is convenient that one department should both have a general view of the whole subject of trade statistics, and should also have the details in its possession.

"1212. One suggestion that was made was for a board consisting of not more than twelve members from the different departments, and another was for a board consisting of three or four members of the great departments; so far as I gather you do not wish to express an opinion in favour of either suggestion, but, on the whole, you are rather in favour of the second than of the first?—I wished to give information, although when the question was pressed upon me it seemed to me that my information tended rather to favour the second proposal than the first; but my object was really to give information, and to leave it to the members of the committee to put what construction they pleased upon it.

"1213. (*Chairman.*) Would there not be this objection to a small board, that it would not represent those great departments, such as the customs and the inland revenue, which really contribute a very large part of the details for the statistics?—I should have thought that to a great extent those departments would be represented by being represented through the Treasury. In the suggestion which I made, the object was to have as small a body as possible, and as both the customs and the inland revenue are dependent upon the Treasury they would be represented by an officer of that department.

"1214. Would you not have a difficulty that in this case the officer of the Treasury would probably be a person who knew very little about the detailed business of the customs statistics or the inland revenue statistics?—I doubt very much if there is anything in that. I doubt if any question of detail could arise in which the inland revenue or the customs would be sufficiently interested, or would care to be represented, for although they act ministerially for the Board of Trade in getting certain information, there their connection with the matter ends.

"1215. With the customs it would be different, would it not, where they have a statistical department, they would feel great interest in it, would they not?—I should hope that the customs would see it to be their interest to look upon the matter in the same way as the department of inland revenue do, and that an arrangement might be made in which they would see it to be their interest to contribute to a central department in the same way.

"1216. (*Mr. Farrer.*) Suppose we go to the other suggestion, that there should be a board of about twelve, representing all the great departments of the State, do you think that all those twelve members would work well upon such a board, or would contribute anything useful towards the centralising and harmonising action of such a board?—My difficulty would be rather how to get the board formed, for really you have perhaps four-fifths of the statistics done by two or three departments who are responsible for them, and to bring in five or six members from other departments who have very little to do with statistics would not be to advance the end which we have in view.

"1217. Supposing that we take things as they are, and that they remain as they are, do you think that there would be any difficulty in associating with yourself as an officer of the Board of Trade some officer of the Treasury, who might make a joint report with you upon any particular statistics; should you anticipate any difficulty in that?—I do not anticipate any difficulty at all. It occurs to me as an addition which might be usefully thought out, that if you have two such officers appointed to look into the matter, there would be no difficulty in associating with them occasionally the officer of any particular department whose statistics might be the subject of inquiry, that is, where the department was of some magnitude, having to do with a large and important branch of statistics. For instance, in looking into the statistics of the Local Government Board you might appoint some statistical officer of the Local Government Board to aid you in that matter and to make joint representations. I really see no difficulty whatever in such a small committee in dealing with the matter.

"1218. (*Mr. Shaw Lefevre.*) In such a committee, the officer representing the Treasury would be permanently attached to the head of the statistical department, and then when they came to inquire into any special department there would be a person representing that department added to them?—That is the idea which has occurred to me, at least with the great departments, when you come to have a great matter to inquire into. I am thinking specially of the Local Government Board statistics and the judicial statistics of the Home Office; when you have matters of that kind to inquire into, it might be a very proper thing to appoint for that purpose certain gentlemen of the Home Office or of the Local Government Board to associate with the other two gentlemen in making inquiry into those matters.

"1219. Then you would have a committee of two, the statistical officer of the Board of Trade and a gentleman from the Treasury, with a third person added from each department to go through the matters relating to that department?—Yes, provided the department is thought of sufficient importance. There is a good deal of statistics done by very small offices indeed, so far as I can gather, and I hardly think that the same necessity would arise as regards every office, but the Treasury probably would be able to cope with personal difficulties of that kind when they arise.

"1220. (*Chairman.*) It would extend to the great finance departments, if it were necessary, to the education department, and the Home Office, and to the Local Government Board Office; I suppose that would be nearly all?—Yes, that would be nearly all. I have hardly been looking upon the Education Office as sufficiently large from a statistical point of view in comparison with the Home Office, with the Local Government Board, and with the Board of Trade.

"1221. I suppose you know that their present volume of statistics is enormously large?—I know that the present volume is enormously large, but I think that the education department is one which I have suggested should be cut down almost more than any in the quantity of its publications, I mean for general statistical purposes. I am not raising the question of the administrative use of them at all.

"1222. (*Mr. Farrer.*) I suppose that the educational statistics that have been referred to would be the statistics to which you would think that the suggestions in Mr. Carmichael's paper, as to the separation between administrative statistics and statistics for the purpose of a national record, is a good distinction?—It seems to me to be one of the cases where the distinction is very sound and very valuable.

"1223. That distinction does not apply to statistics which are published by the Board of Trade, does it?—It does not apply to any statistics published by the Board of Trade, which exist for the purpose of getting statistics.

"1224. Or to the trade statistics?—No.

"1225. You have, I think, lately gone into the history of trade and navigation statistics a good deal?—I have had to look into it often.

"1226. I think it has been generally advised that the trade and navigation statistics are in as good a form as any statistics of the country; I think you are of that opinion yourself, although you had a very small hand in putting them into their present shape, or indeed no hand in it?—I think they are in a better state than almost any other branch of statistics, and I think I may add in a better state than almost any other branch of statistics in any country. The trade statistics of the United Kingdom are really a model, to a very large extent, of what statistics ought to be.

"1227. You say that, not having had any hand in putting them into their present shape, but having an interest in them for many years as a public writer?—Yes, speaking exclusively as a public writer. In that capacity I have had opportunities of using these trade statistics, including of course the navigation statistics, a great deal.

"1228. You know from the history of those statistics how they have been compiled, that they have been compiled by the Board of Customs acting in harmony with the Board of Trade?—That seems to have been the mode, and there never has been a difficulty until now.

"1229. By means of the relation that has hitherto existed between the Board of Trade and the Board of Customs, you have got what you think is the best body of statistics, not only in the country, but in the world?—Yes. However the result has been accomplished, I think that it has been accomplished most satisfactorily.

"1230. Then I think you have had occasion, in looking into the history of these statistics, to see how they have been compiled and how they were put together?—I have looked into that, and I have observed the way in which the present form was drawn up.

"1231. I ask you this, do you not think, from looking at the history of them, that the control of a parliamentary department over those statistics has been of the very greatest importance?—I think so, to some extent. The comparison between those statistics and the other statistics which I had before me when I was writing my memorandum suggested to me that it was the parliamentary control over the trade and navigation statistics which had been the reason that those statistics were so much better than the others, that a great deal of parliamentary interest had been felt in them, that they had been inquired into from time to time and the forms settled by some of the ablest of our parliamentary chiefs, and that that was the reason why the trade statistics have been so good as they are.

"1232. Do you think that the form is of the essence of the statistics?—I think that the form is a very important matter indeed.

"1233. Assuming, then, that parliamentary control to be of this importance, do you think it desirable that that control should be where it has been hitherto, with the President of the Board of Trade, or that it should be with the Treasury?—I think it would be preferable that the control should remain where it is. I should not object much to have it go to the Treasury if the Treasury had time to deal with it, but it is a large enough subject for a cabinet minister, who is, perhaps, not so much occupied as the Treasury would be occupied.

"1234. (*Mr. Shaw Lefevre.*) Have you experienced any inconvenience, or heard any complaint of the curtailment of the trade statistics, which took place in 1870?—Occasionally, but not very frequently. Questions sometimes have arisen which seemed to show that a little more detail on some points would be useful, but these questions have been few.

"1235. The statistics were then very considerably cut down, were they not?—Yes, they were very considerably cut down, and sometimes questions have arisen since on some particular points where we might usefully, I think, introduce further subdivision, but not many questions.

"1236. Not many in proportion to the great curtailment which took place?—Very few in proportion to the great curtailment which took place.

"1237. Are you aware that that curtailment enabled the statistics to be brought down to a very much earlier date?—I believe it facilitated early publication very much.

"1238. (*Colonel Romilly.*) You were asked if commercial questions were referred for opinion to the Board of Trade on matters of home commerce; will you tell me what course the Board of Trade takes when such commercial questions are referred to them for an opinion?—There is a great deal of commercial knowledge which is in the possession of the Board of Trade, from its knowledge of railways, agriculture, shipping, tariff rates, joint stock companies, copyright, hall marking, and such like matters.

"1239. The ordinary commerce of the country?—Yes; the Board of Trade has now quite a large body of information about all those subjects.

"1240. You said that you had been able to give information to the wine duties committee and the hall marking committee; will you tell me whether the Board of Trade gave any information as to the commercial or fiscal aspect of the wine duties before the committee on that subject?—Not as to the fiscal aspect.

"1241. Or on the commercial aspect?—As regards the commercial aspect the Board of Trade as a Board of Trade did not give information, though questions were put to me to elicit my personal opinions by the committee. The Board of Trade, however, has been officially consulted by the Foreign Office on this subject.

"1242. You have spoken of the information given to the hall marking committee; did the Board of Trade make any application to the Customs for any information with regard to hall marking, or the export of plate, or the receipt of drawback?—I really do not remember.

"1243. Can you tell me whether information was given to the hall marking committee that the amount of drawback did not correspond with the plate which was exported from this country, probably on account of the marking of watch cases which were not subject to the drawback?—I cannot tell you; I did not give that information myself, so that I cannot tell you.

"1244. Do you remember that there was application made to the Customs for information upon the subject?—I do not remember at this moment.

"1245. (*Chairman.*) I think you have also prepared another memorandum for the use of the committee?—I have prepared some rough notes which I can hand in; the substance of them has already been in part elicited in the course of my examination. They are as follow: '(1.) It is important that statistics should be compiled in great groups, not only for the sake of harmony, but also for the convenience of reference. Instead of scattering the statistical offices, so that publication should be made by each branch of a department which primarily collects them, you should, if possible, concentrate them. For instance, in the case of judicial and prison statistics, those interested in these matters should have one office to which they could go; the same with statistics of local administration; the same especially with trade. I am quite certain that the utmost inconvenience would now be felt if the statistics of my department were split up, and members had to go to one department for railway statistics, another for shipping, another for imports and exports, another for agricultural statistics, and so on. Of course it may be said that people could come to a central abstracting department, which is so far true, but the references are frequently for more details, such as only a compiling department can give, at the very time that information on a variety of subjects is required. I may refer to inquiries lately made to me about tariffs, the woollen trade, and the wine duties. It was certainly most convenient to members of parliament that the statistical department of the Board of Trade had all these subjects in hand. It would have been still more convenient if our control over statistics of imports and exports had been more complete, and we had, in fact, had the compiling of imports and exports as well as tariffs, and shipping, and foreign statistics in our care. Another case, in which the same convenience will now be felt is, in regard to the sugar bounties. I have lately been asked to give evidence, and may give it next session, and I could not give it conveniently and completely without having foreign and colonial trade statistics and tariffs, as well as our own imports and exports in my care. The data from all sources have to be brought together. Another illustration may be given in regard to corn averages, agricultural statistics, and weights and measures. It has certainly been most convenient that all three subjects are dealt with at the Board of Trade, and that the same department has also foreign and colonial trade statistics. Perhaps I might also notice a reference lately made to the Board of Trade by the Treasury with regard to the statistics of trade with China as one of many minor references continually made to us. A merely abstracting department could hardly have answered, and it was convenient that a compiling department should have had in its hands several departments of trade statistics in conjunction with the work of abstracting. In some respects I believe we could have answered more fully with all the details of imports and exports in our hands. We might have shown, for instance, with more evidence, that Hong Kong is merely an intermediate port, and its trade must be included when we include the whole trade with China. For the convenience of members of parliament and ministers it might even be a question in this view whether all statistical departments should not be merged, if possible, into one, so that people instead of being badgered from office to office, might always be able to go to one place for statistical information; certainly you must not have too many places. It is also convenient, for the sake of economy, to have statistics in great groups, or you may create a statistical department or office where a clerk or two would suffice. Formerly the comptroller of corn returns had a separate department with a staff of eight clerks; now, one clerk does all the clerical and compiling work, with other work besides. The transferrence of shipping statistics from the registrar-general of seamen's office to the statistical department of the Board of Trade has also been economical. (2.) It is of importance that a department which has charge of abstracts and of the general duty of harmonising statistics, and keeping them in order, should also be a department with an important branch of compilation in its charge. A department with abstracts only is apt to become like an outside statistical expert, knowing nothing really of the difficulties which beset the collection of data and of assigning a proper meaning to the figures and expressions in the tables. The compiling departments will also be apt to look on such a department for abstracts only as they would look on experts, however able; as people who have a certain facility in arranging data put into their hands, but who have no practical knowledge of the subject matter of statistics, and are likely to be misled on many points. I have found it at any rate of great value at the Board of Trade for the purpose of abstracting that we have a knowledge of the subject matter of many statistics.

It would be a different thing to say that the abstracting department should compile all statistics, but it will understand better even those it does not compile, if it has to compile others. Take, for instance, railway accidents or wrecks; those not accustomed to statistical compilation would be apt to prepare tables on the assumption that there is no difficulty in the subject, that what you have got to do is to have a return of accidents or of wrecks, and casualties, which any clerk could digest if you give him the forms. An acquaintance with original compilation shows what nice questions of definition may arise; what difficulty there may be in such a simple matter as the year of record, or the year of occurrence, as the basis, and what problems there are in arranging the tables so as to inform those interested of what they want to know —for instance, in wrecks, of the geographical distribution of the wrecks, the age of the ships, and the nature of the casualties, &c. Those who are to abstract should also know the teleological use of all their tables, and they cannot know this properly without much practice in compilation. In my own experience my having to compile shipping has brought to my knowledge such points as whether tugs are to be included among coasters; how entries and clearances in the foreign trade are to be dealt with when they are made by a particular ship at more ports than one; and how difficult it is to get a proper return of clearances of vessels in the coasting trade in a country like England. The full knowledge of the meaning of the data in statistics is thus only brought home by actual experience. The same with emigration; an outsider might imagine that nothing was more easy than statistics of emigration, whereas nothing is more difficult. What you want to get at is a record of people leaving the country for permanent settlement abroad, but practically in this country you omit all record of outgoing or incoming, except to and from places out of Europe. You must also make separate lists of foreigners, so as to keep natives of your own country distinct; and so hopeless is it for you to ascertain who of those leaving the country go for permanent settlement abroad, that the only way to arrive at an approximately correct result is to strike a balance between those who go and those who come, without any reference to the question of permanent settlement at all. I have striven to make this clear in my reports on emigration and immigration; but I doubt if the subject is generally appreciated. Since I commenced these reports a return was asked for in the House of Commons, and assented to by the Treasury, in which it was assumed that the number of emigrants could be stated without further definition or explanation. Those who abstract statistics should, however, have a sense of difficulties of this kind. Otherwise they may make mistakes, such as were made by the member who asked for that return and by the Treasury which agreed to it. (3.) It would be convenient in England at least that a central statistical office should be attached to the department which compiles trade statistics generally. In England it is trade and business which cause most inquiries, and it would be inconvenient for members and the government to be sent from the central office to the compiling department, and *vice versâ*, as would have to be done if the abstracting department were separated from the department which has agricultural, railway, shipping, and other trade statistics to compile. This badgering to and fro may be tolerable in other matters, such as population statistics, where there is less keen and immediate interest, but can hardly be tolerated in trade matters. It is felt enough of a grievance already that people are sometimes sent from the commercial department of the Foreign Office to the Board of Trade, or Treasury, and *vice versâ*, or from the Privy Council to the Board of Trade; you could not separate the central statistical department from the compilation of trade statistics without causing great inconvenience or extinguishing a facility in procuring information which is now greatly appreciated. This is apart from the further question of the statistical trade department being also in the hands of a commercial department, acquainted with business matters, and accustomed to advise the Government on them, which is also convenient.'

"The witness withdrew.

"Mr. Giffen subsequently addressed to the Secretary of the Board of Trade the following letter with reference to his evidence:—

"To the Secretary of the Board of Trade.

"Sir—With reference to the evidence which I gave before the Treasury Committee on Statistics I wish to add one or two observations for your information, and for the use, if you approve, of the committee on statistics, the Treasury, and the Board of Trade.

"My evidence was of a general character, and only touched incidentally on the matters in dispute between the Customs and the Board of Trade respecting the statistics of imports and exports. I wish now to represent as regards this last point that in my opinion, and apart from any question as to the actual historical claims of the two departments, it would be productive of great public inconvenience to take away from the Board of Trade any part of the control over these import and export statistics which it claims, and it would be expedient if possible to increase the share and responsibility of the Board of Trade in the compilation.

"The reason for my opinion is that the Government and members of parliament are constantly requiring information in detail, often in great haste, respecting the imports and exports, which it is most convenient for the Board of Trade, both as a west end office and as the department in charge of other trade statistics, to possess. At present much of this detail can be furnished to them at the Board of Trade, where there is an intimate acquaintance with the forms of the accounts, with the definition of the articles and countries for which information is given, with the trade of principal ports, with various doubts and questions which have arisen, and also with shipping and other departments of trade whose statistics throw light on, or are connected with, those of imports and exports; where there is also an intimate aquaintance with foreign trade statistics, which sometimes from the greater detail in some foreign publications or from the correspondence of facts brought out, illustrate or supplement those of our own returns.

If the control now claimed by the Board of Trade were in any way to be diminished, the tradition of the office would become different. There might remain the same knowledge of the form of the accounts, which goes a great way in assisting ministers and members of parliament in utilising information in the import and export returns; the knowledge of shipping and foreign trade statistics, as of other allied trade statistics, would also remain with the Board of Trade; but to some extent the ability of the department to give information would be affected by its no longer having power to settle, as regards the imports and exports themselves, 'the nature and extent of the statistical information to be furnished and the form and construction of the returns.' This power enables the department to speak with authority about the details of the imports and exports statistics and their meaning, and it would not have the same authority without the power. Hence to take away from the Board of Trade any of the power it claims would be to impair its general usefulness as a west end statistical office possessing statistical information about trade matters.

"Actually the recent objections which the customs have made to this control and their efforts to act independently of it, have had an injurious effect. Not only have certain amendments in the returns suggested by the Board of Trade not been carried out, but a practice has grown up in the customs of altering the nature and extent of the statistical information furnished, which is a constant nuisance in extracting information from the annual statement of trade. In giving the particulars of the imports and exports of articles by countries, the customs now leave out and insert each year, according, as they allege, to an estimate of the relative importance of the trade each year, what countries they please. The proper practice, and what used to be practice, was not to leave out any country for which particulars had once been given, until it appeared definitely that *on the average of years* its trade on the article in question had fallen below a certain proportion. This permitted the annual statement to be used with facility, and with the knowledge that if any country was left out in a particular year this had been done deliberately, and that until some permanent change arose it would not be re-inserted. Now there is a perpetual shifting of countries, which the Board of Trade would not have sanctioned, and which it is most desirable indeed to put a stop to. The shifting is constantly interposing difficulties in the way of complete comparative statements of trade for a long series of years. In view of what has happened the Board of Trade would now be disposed to recommend that no such changes should be made without a permanent record to that effect in the return.

"Were the control of the Board of Trade more complete, it would also be possible for the same office, which has information about shipping, railways, prices, wages, and other trade matters, as well as about foreign trade, to communicate when required even more detailed information than it now does about parts of import and export trade, especially when details as to *current* trade are required, which details will only be published in the annual statement when the year is complete. Many questions and much trouble would be saved if the annual statement were published earlier than it is, but there would always remain some demand for current information in advance of the annual statement.

"An arrangement by which the Board of Trade could be placed in possession of even more detailed information than it now possess would also be very simple. This could be done (1) by enlarging the suggestions in Messrs. Foster and Lefevre's reports in 1871 for an officer of the Board of Trade visiting from time to time the statistical offices of the customs; and (2) by changing when there is opportunity the present mode of collecting the statistics of imports and exports, and adopting for them the form now in use in the shipping statistics.

"Were the collectors of customs to send monthly to the Board of Trade a record of the imports and exports as they now send a record of the entries and clearances of ships, the Board of Trade would have all the import and export information, as they have all the shipping information, in their possession. This arrangement would probably be conducive to economy in the compilation of the imports and exports statistics; but the point of view from which the matter is here discussed is the availability of the information about imports and exports for ministers and members of parliament.

"In all this, as I have said, I have been discussing the matter apart from any question of the historical claims of the Board of Trade, and I wish to avoid introducing any personal question. But there is one point of view in which these historical claims are a matter of general concern. Such disputes might easily arise as to other statistical compilations. When a new branch of statistics is instituted, or an old branch remodelled, there is no help but to resort to a central statistical office, just as, to take recent illustrations, the statistical department of the Board of Trade was resorted to when agricultural statistics were instituted, or when the emigration statistics had to be taken in hand and amended; and just as, it is believed, the same department was resorted to in 1853 when the statistics of imports and exports themselves had to be amended. But once the routine is set agoing, nothing is easier than for the department, whose officers collect the information and have all the data in their possession, to set up a wholly independent statistical office, as the customs have lately attempted to do with their statistical branch. There will also be a natural tendency to this continual splitting off of the statistical offices from the central office unless it is resisted. The collecting departments naturally come to think they know all about it, and that it is a waste of energy, duplication of work, and an occasion for delay to transfer the data to another office for editing. Such were the reasons in 1871 for withdrawing from the Board of Trade its work of editing the imports and exports statistics, which has ultimately furnished the opportunity of the demand from the customs that the authority of the central statistical office should be ignored altogether. But the collecting departments really ought to be restrained in this natural attitude of theirs towards a central office. The multiplication of statistical departments, *as this committee has found*, leads to confusion, inharmoniousness, and excessive bulk in the statistics, besides causing the whole expense of collection to be much greater than it would otherwise be. There is a real convenience in a central office having many subjects to deal with. The central office should therefore be supported and strengthened in every way against the centrifugal tendencies of the collecting departments; and in this particular dispute such an arrangement should be made as will make clear and definite the power of the central office, and if necessary enlarge that power, the customs having no doubt been led into error through ignorance of the bearing of their pretensions on the proper collection of the whole statistics of the kingdom. If the customs are now allowed to have what they claim, a most formidable danger to the future harmonising and condensation of the national statistics will be created.

"I am, &c.
"(Signed) R. GIFFEN.

"Statistical and Commercial Department,
Board of Trade, 18th August, 1879."

It has only to be added as an illustration of how things are done, and of the respect paid to statistics by leading members of parliament and the government, that up to the present time (7th June) no action has been taken on the report of the committee; and up to February last the Treasury had not even begun to consider the committee's report or what action should be taken with it. The knowledge of these facts will be of general interest, we think, to statisticians both at home and abroad.

MISCELLANEA.

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I.—*Commercial and Financial History of* 1880.

The following extracts taken from the Supplement to the *Economist* of the 12th March, 1881 (being the eighteenth of the series—commenced with the review of 1863, and published as supplements to the *Economist* in the second week of March, 1864-80), are in continuation of a series of similar notices that have appeared annually in the *Journal* since 1865:—

"The very considerable improvement and general rise of prices which marked the close of 1879, and the first three months of 1880 was not maintained during the summer of the year. It is now clear, that stimulated by the sudden and large American demand, first for iron and steel, and then for other commodities, which appeared after September, 1879, there arose, in nearly all the considerable markets in this country, a violent speculative fever. Thousands of persons who had no knowledge of business became buyers of commodities for present, and still more for future delivery, in the expectation that a continued rise of price would enable them to pocket a large margin of 'difference' with little or no real outlay of capital. The operation was of course overdone, as nearly all wild operations of the kind always are, and ended in producing severe losses in numerous quarters, and a relapse of prices, which even in the early weeks of 1881 has not been corrected. The facilities and rapidity of intercourse now prevailing over the commercial world render all the trading countries, but especially this country, more and more likely to be led from time to time into vehement spasms of speculation. The large reserves of money-capital fostered in the United Kingdom by means of the practice of deposit banking on a large and extending scale, furnishes the means at almost a moment's notice for the commencement of speculative operations in securities, shares, stocks, or commodities, as circumstances may suggest and seem to justify. The same remark applies next to the United States, and then to France and Germany. Legislation is of course powerless, and ought to be powerless, to prevent or correct follies and miscalculations of a speculative nature so long as the persons concerned in them deal only with their own capital and credit within the limits of honesty. The cure, if it ever arrives, must be in a better and larger mercantile education and experience.

"1880 has been comparatively free from the foreign wars and active foreign diplomacies of 1877 and 1878, and in a less degree of 1879.

"We insisted in the review of 1879 upon the very serious hindrances to the progress of wealth and comfort in Europe of the formidable condition of armed peace which has prevailed since 1865. In the fourteen years, 1865-78, the military expenditure of Europe has risen at the rate of 3 million pounds a year, or by no less than 43 million pounds, or from 117 million pounds to 160 million pounds per annum, and there are no signs of diminution, but the contrary. We give in Appendix (N) a careful collection of facts showing that within the last twenty years the cost of the civil war, 1860-65, in the United States was in direct expenditure not less than, say 1,000, and that the Franco-German and Commune war, 1870-71, similarly cost France 600 millions sterling. To these vast direct expenditures must be added the cost of the German-Danish war of 1863, and of the Austro-German war of 1866. When to the destruction of capital and labour, direct and consequential of these wars, is added the further loss of capital and labour, arising from six or seven defective harvests since 1870 over most parts of Europe, we shall begin to see in precise form how it has happened that for several years past trade has been restricted and unprofitable, and the employment of the working classes uncertain, and on a large scale ill-paid. There is no more pestilent or misleading doctrine in economics than that which leads men to suppose that the destruction of capital, and the destruction and misdirection of labour occasioned by war, can be overcome except by years of impoverishment and suffering. Even in the United States, aided as they have been by a vast immigration, and by boundless fertile land, it has taken more than fifteen years to enable them to recover in a sensible degree from the loss of property and loss of life, health, and comfort in the civil war, 1860-65.

"In order to exhibit in the clearest and most precise form the advance in 1880 over the crops of the ten years 1870-79, it will be necessary to divide those ten years into two series of five years each, viz., 1870-74 and 1875-79, to exhibit the averages of each five years (as is done in the preceding table), reduce those averages to the basis of 100, to represent the total number of 'advices,' and to exhibit in percentages of 100 the proportion of over average, average, and under average advices, and to test the figures of 1880 in the same manner. The following table effects this:—

Percentage Equivalents of Preceding Tables;[*] *Averages, Two Five Years, and One Year*, 1880.

Periods.	Wheat.				Barley.			
	Advices.	Over Average.	Average.	Under Average.	Advices.	Over Average.	Average.	Under Average.
1870–74	100	22	25	53	100	18	45	37
'75–79	100	6	20	74	100	8	34	58
1880	100	10	55	35	100	29	62	9

Periods.	Oats.				Beans.			
	Advices.	Over Average.	Average.	Under Average.	Advices.	Over Average.	Average.	Under Average.
1870–74	100	17	45	38	100	12	42	46
'75–79	100	13	44	43	100	5	32	43
1880	100	30	57	13	100	27	54	19

"The result of this percentage test is very satisfactory as regards 1880, but very unsatisfactory as regards the five years 1875-79.

Gazette Average Price of Wheat (per Imperial Quarter) in United Kingdom, immediately after Harvest, 1874-80, *and Total Average Gazette Price of Calendar Years.*

Periods.	1880.		1879.		1878.		1877.		1876.		1875.		1874.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
After harvest	43	3	49	9	40	4	56	–	47	–	46	–	46	1
Calendar year average	44	4	43	10	46	5	56	9	46	2	45	2	55	9

"Under the usual head of corn and cattle trade, we have collected ample returns showing that the harvest of 1880 was, as compared with previous years, and particularly with 1879, highly favourable, and this is true not only of these islands, but of a large part of Europe. One good harvest does not, of course, furnish a cure for a series of bad ones, culminating in a catastrophe so severe as the season of 1879; and the agricultural agitations and discussions set afoot by the bad seasons, are not likely to be closed until radical changes have been effected in this country in the tenure of land, and in the relation of farmer and landlord. Moreover, it is becoming clear that there are in nature cycles of seasons governed by the phenomena of solar physics, and, as appears by the recorded views of so competent an observer as Mr. Balfour Stewart (Appendix M), the investigation of these phenomena has already advanced so far as to entitle the suggestion of what is called the eleven years' cycle of seasons to be advanced from the state of mere guess, to that of tenable hypothesis. Scientific curiosity is now thoroughly aroused regarding this hypothesis, and we have the satisfaction of knowing that inquiry will not rest till the truth be ascertained. Mr. Symons, the well known meteorologist in Camden Square, seasonably draws attention to the fact that in June, 1859, the registrar-general went so far as to suggest that the facts of rainfall then available suggested that the 'annual rainfall in this country' was becoming yearly smaller.

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[*] Omitted for want of space.

"In the United States, the revival of trade which began in 1879, as soon as the restoration of specie payments was established (as from 1st January, 1879), has made still more decided advances in 1880, and the danger at present is to restrain enterprise and speculation within prudent limits. The presidential election for the four years, to commence from 4th March, 1881, took place in November, 1880, and resulted in the election of General Garfield, a republican and protectionist, by a narrow majority, over General Hancock, a democrat, and supposed until the latest moment to be a free trader.

"Consequent on the free trade defeat of the year 1880, there was formed in New York in that year a 'Society for Political Education,' among the executive of which are the names of David A. Wells, Horace White, General S. Coe, Professor W. G. Sumner (Yale College), A. S. Biddle (Philadelphia), Charles F. Adams (Boston), Archibald Mitchell (New Orleans), Franklin McVeagh (Chicago), General Mason (Galveston), Peter Hamilton (Mobile). In the programme of principles are the following :—'Trade has the right to the freest scope, unfettered by taxes, except for Government expenses; labour has the right to the highest wages it can earn, unhindered by public or private tyranny; neither the public money nor the people's land must be used to subsidise private enterprise; coins made unlimited; legal tenders must be of full value, as metal in the markets of the world; sound currency must have a metal basis, and all paper money must be convertible on demand.' The Secretary is R. L. Dugdale, 79, Fourth Avenue, New York City. The society will prepare and publish books and pamphlets illustrating and enforcing its objects and aims.*

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* "The following is from the *Times*, 22nd February, 1881 :—

"'Mr. Frank Hurd, a democratic member of Congress from Ohio, and a pronounced free trader, gave a dinner on 21st February, 1881, in Washington, to thirty free trade members, at which an organisation was formed to begin an aggressive free trade movement, making this, if possible, the future democratic policy. Mr. Samuel S. Cox was made president; Mr. Morrison, of Illinois, Mr. Carlisle, of Kentucky, Mr. Mulls, of Texas, and Mr. Tucker, of Virginia, vice-presidents; and Mr. Hammond, of Georgia, Mr. Bragg, of Wisconsin, Mr. Lefevre, of Ohio, Mr. Blackburn, of Kentucky, and Mr. Townshead, of Illinois, directors. The addresses given indicated the intention of making free trade a prominent issue in the next presidential campaign.'

"In Appendix (S) we give an abstract of the flourishing revenue returns of the United States, 1878-80. Mr. Sherman, the Financial Secretary, applies the large surpluses available to reducing debt and national taxes, and with good reason as regards the debt, and with some reason as regards the national taxes. But the debt is rapidly becoming so small a burden that, supposing the revenue surpluses to continue, they must in a short time be employed to cut down the higher and more protective duties of the tariff. Outrageous as these duties are, they are unable to keep down the influx of foreign goods, even of the iron and steel of this country, which the Pennsylvanian iron interest does so much to exclude. The figures of the official bureau at Washington show that while the exports of merchandise from the Union, aided by the bad harvests in Europe, were 150 million pounds in 1879, and 172 million pounds in 1880, a rise of 14 per cent., the imports of merchandise into the Union rose from 97 million pounds in 1879, to 142 million pounds in 1880, or 50 per cent.

"The following quotation describes the immigration into the Union in 1880:—

"'The Bureau of Statistics at Washington has just issued its report on the immigration of the year 1880, and the statistics it contains are on the whole the most remarkable of the kind which have ever appeared even in the United States. The total immigrants into the Union in 1880 were 586,000, of whom 327,000 landed in New York city. The influx of 1880 is 50,000 more than the total influx of the preceding three years 1877-79. The total influx of the four years 1877-80 is no less than 1,122,000 persons. It is a new and remarkable feature in the facts of 1880 that quite half the immigrants arrived between March and July. In former years the bulk of the immigrants came later in the year. But the people who arrive early go at once to the west or north-west, and get settled before the winter. It is also a new fact that upon a large scale the immigrants have arrived with prepaid tickets to a given destination, indicating foresight, means, and organisation. For example, out of the 327,000 persons who landed at New York, as many as 112,000 went at once to places in the west, and 63,000 persons to places east and north-east, leaving 137,000 who for some time, long or short, remained in New York State. Of the same 327,000 arrivals, 113,000 were from the United Kingdom, and 105,000 from Germany. The total body of 586,000 immigrants are described as being 'in an unusually good physical and financial condition.' Of the financial condition satisfactory evidence is afforded by the official estimate that the average amount of gold and silver coin brought by each person was not less than 50 dollars, or, say 10*l.*—a figure which would give about 6 millions sterling as the total gold and silver arriving in the Union over and above the importations of these metals shown by the custom house returns for the two years 1878-79. But the gain in gold and silver money is the smallest part of the benefit conferred on the United States by the yearly immigration. It has been computed at various times that the average capital represented by each immigrant is not less than 100*l.* sterling—that is to say, that the cost of infancy, education, food, clothes, and industrial training has amounted all round to 100*l.* a-head; in other words, regarding each immigrant as a mercantile commodity or transaction, the arrival of 586,000 immigrants in 1880 was the same thing as if Europe had made a present to the United States of, say 60 millions sterling of exported (European) goods; or to give another illustration, in substance the same thing as if Europe by an effort of benevolence had taken upon itself the whole burden of the Federal expenditure for twelve months. In all discussions, therefore, of the progress of the United States, it must be remembered that Europe is contributing in by far the largest degree to the wonderful tale of enterprise and cultivation which constitutes the history of the west, south, and north-west. It is not very long ago that there was a strong feeling against emigration even in this country. The economists have at length convinced people that of all sorts of export trade, emigration is exactly that kind which may be left most entirely to itself. Men and women do not emigrate, do not leave friends, home, early associations, country, and kindred, unless under the strongest conviction that they can turn their labour and abilities to better account in the new country than the old one. And, if this be the case, as it is in all except a small class of cases, it is certain that nothing will so soon equalise the prosperity and attractiveness of the country which is left and the country which is chosen, as the prevalence of the freest emigration between them.'

"The rapid diminution in the number and magnitude of the mercantile failures in the United States affords strong evidence of the solid character of the prosperity. For example, Messrs. R. G. Dunn and Co. (New York) report as follows on the number of failures in the United States and Canada during 1880:—

"'These tables indicate that the mercantile failures in the United States during the year 1880 were in number 4,735, with liabilities aggregating nearly 66 millions of dollars. The failures for 1879 were in number 6,658, with liabilities of 98 millions. The decrease, therefore, for the year 1880 is 1,923 in number, and in liabilities 27 millions—thus showing an improvement equal to 40 per cent. in number, and a saving in losses by bad debts in the same proportion. While the comparison of 1880 with 1879 is so extremely favourable, the comparison of 1880 with 1878 is even more remarkable. In 1878 the failures numbered 10,478, while in 1880 they numbered only 4,735, indicating a lessened number of casualties by 5,473, equivalent to nearly 60 per cent. But in the amount of liabilities the change for the better is even greater, for in 1878 the indebtedness of those who failed was 234 millions, while in 1880 it did not reach 66 millions—a lessened amount by 168 millions. When it is remembered that the number of persons now engaged in business as compared with 1878 is nearly 10 per cent. greater, and that the extent of the transactions during 1880 at least trebled those of 1878, the significance of the lessened number of failures and the reduced loss by this cause will be apprehended.'

"Closely connected with the progress and prospects of free trade in the United States, is the contest which for several years past has created violent political commotions in the two leading Australian colonies of Victoria and New South Wales.

"The premier colony of New South Wales has wholly escaped the protectionism and anarchy of Victoria, and has prospered accordingly, and as the following statement* shows, has vindicated its free trade principles in no uncertain manner.

"The suggestion in the last paragraph to the effect that New South Wales and South Australia should declare themselves free ports, has been several times suggested as a wise fiscal measure on the part of those colonies, and may be adopted. It would of course speedily put an end to protectionism in Victoria.

"In Appendix (P) we give details showing that in 1879-80 there has been a marked decline in the quantity of silver produced in the United States, notably in the yield of the famous Crustock lode, which six years ago was held out as a source of silver supply which would revolutionise the relations of the two precious metals.

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* Omitted for want of space.

"Concurrently with this decline in the production of silver, there are indications that in southern India an extensive area has been discovered in which it is possible to carry on gold mining on a large scale with considerable profit.

"There has, of course, been a wild outburst of India gold companies during 1880, into the respective merits of which it is no part of our design to enter. In the early part of 1881, the Stock Exchange year book for 1880 set forth particulars of gold companies then quoted showing an aggregate capital, called and uncalled, of 2¼ million pounds. Of this sum 871,000*l.* had never received any dividend, 362,000*l.* had had no dividend for several years, 110,000*l.* was paying about 3 per cent. per annum, and 896,000*l.* paying dividends of 10 to 50 per cent. per annum.

Gold 1877-79. *Estimated Gold Production of all Countries.*

Customs.	1879.	1878.	1877.	Countries.	1879.	1878.	1877.
	Mln. £	Mln. £	Mln. £		Mln. £	Mln. £	Mln. £
United States	7,78	10,24	9,40	Austria	1,21	1,22	1,22
Australia	5,80	5,80	5,80	Rest of Europe, excepting Russia	50	50	50
	13,58	16,04	15,20	South America	1,36	1,36	1,36
Russia	5,44	5,60	5,32	Africa and Japan	50	50	50
	19,02	21,64	20,52		3,57	3,58	3,58
Mexico	21	21	20				
	19,23	21,85	20,72	General total	22,80	25,43	24,30

All the Australian Colonies. Produce of Gold, Twenty-Eight Years 1850-77, *and Year* 1878 ("Victorian Year Book," 1881). *Mln. £.*

Colony.	1850-77. Twenty-Eight Years.	1878.	Total, Twenty-Nine Years.
	Mln. £	Mln. £	Mln. £
Victoria	189,1	3,1	192,3
New South Wales	32,2	4	32,6
Queensland	9,7	1,0	10,7
South Australia	2	—	2
	231,2	4,6	235,8
Tasmania	2	1	3
New Zealand	33,7	1,2	35,0
	265,1	6,0	271,1

"The average earnings of persons engaged as miners at the gold fields of Victoria, as estimated by the quantity of gold raised and assumed to be divided rateably among the miners has been as follows :—

Year.	Miners.	Average.		Year.	Miners.	Average.	
		£	s.			£	s.
1870	59,247	81	–	1875	41,717	104	4
'71	58,279	93	6	'76	41,010	89	19
'72	52,965	93	17	'77	38,005	82	6
'73	50,595	93	16	'78	36,636	82	12
'74	45,151	99	8	'79	37,553	76	1

"In 1879 the 37,553 miners were composed of 22,769 alluvial and 14,874 quartz miners. The nationalities were 28,443 Europeans and 9,110 Chinese. In Victoria seventeen of the shafts and pits sunk in auriferous quartz have attained depths of 1,000 feet and more.

"Among the events of 1880 likely to produce important changes is the proposal of Italy to get rid of the severe burden of its depreciated paper. With this object Signor Magliani (February, 1881) has just introduced into the Italian Chamber a Bill for restoring specie payments in Italy. Italy is a member of the Latin Union. In his statement, Signor Magliani says that the last treaty of the Latin Union permits each of the five countries composing it, the free coinage of silver till 1885. He says that the battle of the monetary standards is now confined to the choice of a double standard of gold and silver, or a single standard of gold. Nobody in Europe asks for a single standard of silver. He adds with truth, that the characteristics of a double standard are that it fixes a legal ratio (say 15½) below gold and silver, and by the permission of free coinage by the public of both metals, the cheapest of the two strongly tends to predominate as a medium of payment. At present silver is in the open market 18 per cent. below gold, and free coinage, therefore, would in Italy (or elsewhere) presently produce a coinage of silver, or nearly so, and that the 'present forced currency of paper would be replaced by a forced currency of silver less convenient and pleasing to the public than the present unconvertible notes.' As seen below, the total paper circulation in Italy is 66½ million pounds, of which 18 million pounds consist of notes under 8*s.* 4*d.*, and these at all events will have to be replaced by silver. Whatever scheme may be adopted it is clear that Italy will have to come largely into the silver market. To what extent it may require gold is yet unsettled and uncertain. The finance minister did, or does contemplate a loan of 26 million pounds to complete the operation, and it is still doubtful whether Italy is rich enough to sustain a further burden of such magnitude.

"The condition of France is most urgent and perplexing. It is quite clear that unless some decided change of monetary policy be adopted, the Bank of France will be drained before long of all, or nearly all, its gold. A rapid rise in the rate of discount might enable the Bank of France to arrest this drain, but to raise the rate of discount and keep it raised long enough, would be a political disturbance to which the Government would not consent. Hence France has proposed to America and the other countries a renewed monetary conference at Paris in May next, in continuation of the conference held in Paris in 1878, at the instance of the United

States. Then the United States proposed and urged bi-metallism, under the expectation that the American silver mines were going to overflow the world. The United States have now found themselves in a new difficulty. The Bland silver party in 1878 forced Congress to coin not less than 4,800,000*l.* per annum of silver dollars, 412½ grains—that is to say, at the present price of silver—about 12 per cent. under par with gold, in the hope and expectation that the public would use these dollars as a legal-tender medium. The public of America, like the public of other countries, are not so simple as to do anything of the kind to oblige the Bland or any other party; and so the vaults at Washington hold 16 millions or 18 millions of useless dollars, and will soon hold 25 millions or 30 millions, unless some change of conditions be effected. The Latin Union, including France, Italy, Belgium, Switzerland, and Greece, was formed at the persistent urgency of Napoleon III, as part of the plan for bringing together that "union of the Latin races" which constantly figured in the Imperial dreams of policy. The notion was that throughout the five associated States the moneys of each should have equal currency, upon the principle of a double standard of gold and silver, rendered effectual by free coinage of each metal, and therefore the predominance in use of the cheaper of the two, as the state of the bullion market may determine. When, after 1871, Germany, in an evil moment for itself, hastily adopted gold as the standard of its reformed and unified circulation (a reform in itself wise and necessary), France and the Latin Union became, in the interest of creditors, alarmed (as well they might be) that the silver exported from Germany would find a ready field in the bi-metallic States, and drive out from them all or most of the gold. Hence the Latin Union came together without delay, and in order to keep out the German silver, resolved that within the five States the free coinage of silver should be stopped till 1880, and then till 1885; that the government of each State should alone coin a specified quantity of silver each year, and that as a necessary complement, the coinage of gold should be unrestricted. Since the adoption of these resolutions in 1874, there has been in the Latin Union not bi-metallism, but a compulsory circulation of silver coins, about 12 per cent. below par. with gold, and of course, the gold being of more value abroad than in the Latin Union, has left the Latin Union, and will continue to leave it. The fundamental mistake of the Latin countries was to form a monetary union at all. The money of a country must be adapted to the industry and means of the country itself; a country is not made for the sake of a particular kind of money, but the particular kind of money is made—and has to be discovered—for the sake of a country. The further and fatal mistake of the resolutions of 1874, was that they departed fundamentally from the principle of the double standard. Left to itself in 1874, the surplus silver from Germany would, in a short time, have found its level, without causing much disturbance in the bullion markets of the world. Debtors for a time would have had some advantage, but not to a great extent. But much or little, it would have been no more than their contract expressly entitled them to.

"It is said that England has, for courtesy's sake, consented to send a delegate to Paris in May next. Courtesy is, of course, always commendable, but as regards any real concessions which England may be expected to make, it is manifestly impossible. It is, however, quite possible that the close of 1881 may see rupee securities and bar silver at a very much higher figure than they are at present.

"In the trade reports will be found ample details concerning the great instrumental articles of iron and steel, the fluctuations in which were so prominent from September, 1879, to May, 1880. The varieties of opinion respecting the position of these articles and of coal in this country has been extreme: on the one hand it has been loudly affirmed that the American tariff and the American production would quite exclude English iron and steel from the States; on the other, that the improvements and economies effected recently in the iron and steel manufacture in this country will, it is said, enable us to command a large American trade in spite of the tariff and the protected ironmasters. It is certain that in January and February, 1881, English iron and steel meet with a large demand in New York. Regarding the progress of scientific discovery, the following statement is encouraging:—

"'The progress of the Gilchrist-Thomas process for the dephosphorisation of iron has been both steady and marked during 1880, although it has made greater advances on the continent than in our own country. In England it has been in continuous operation at the Eston works of Messrs. Bolckow, Vaughan, and Co., at Middlesbrough, since the 18th of October, 1880. Previously to that time it had been tried at Eston, but without success, owing to the convertors being too small. Two 15-ton convertors were, however, put up, and on the day mentioned they were started, and have been working day and night ever since with every success, commercially as well as scientifically. The metal is taken direct from the blast furnace, and is used without remelting. The pig employed contains about 1·5 per cent. of phosphorus and 1·2 per cent. of silicon, and is made from Cleveland stone, without any admixture. The steel contains an average of about 0·05 or 0·06 per cent. of phosphorus and about 0·40 per cent. of carbon. The basic lining material is manufactured by Messrs. Bolckow, Vaughan, and Co. themselves, and so satisfied are they with the working of the process, that they are erecting two more convertors of large capacity which will be started in about two months' time. Beyond this, seven other English steel-making firms have taken licences, and the erection of several special works is in contemplation for carrying on the dephosphorising process with new and appropriate plant and machinery.

"'With regard to the progress the process is making abroad, we may observe that in Belgium there are now four convertors at work, with excellent results, where one large new factory is in course of erection for the process, and two more are contemplated. In Germany the process is being steadily carried on at Horde, Ruhrort, Aix-la-Chapelle, Kaiserlautern, and other places. The Horde Company have erected new and special works for the Gilchrist-Thomas process, which will be started in a month or so. Messrs. De Wendel and Messrs. Stumm have also erected new works, which will be started upon the process early in the spring. It is satisfactory to note that the Appeal Division of the Imperial German Patent Court has just reaffirmed the validity of the Thomas patents in Germany, on appeal. In Austria the process is now being continuously carried on at Rothschild's works in Moravia, also at Teplitz, and Kladno, in Bohemia, while other firms are making arrangements for adopting it. At Creusot the process continues to be carried on, both in the Bessemer and the Siemen's steel works with success. Licences have also been taken by the proprietors of five other leading French works. At Longwy and at Jœuf new works for carrying on the process upon an extensive scale are approaching completion. The process is now being worked in Poland, and will shortly be adopted by some other Russian firms. It is also being pushed in America, where new convertors are in course of erection for working the process specially, and which will have the capacity for an output of 200,000 tons per annum. Some existing works are also being modified, so as to meet the requirements of the new process.'

"The probability is, that in most of the iron works in this country in which pig iron can be made and sold to a profit at 50*s.* per ton or under, there will be a demand of some extent for American consumption. It is certain that in a large part of Scotland, Staffordshire, and other districts a considerable number of iron works are so old-fashioned and so ill-placed as regards modern requirements of the trade, that they will have to retire from competition with newer and better situated concerns. But that the iron trade of this country is likely to be seriously jeopardised by the American tariff is hardly probable, and its effects is one of those nervous alarms to which people in this country are apt now and then to give more attention than they deserve.

"In the *Economist*, 1st January, 1881, we investigated with some care the course of the prices of commodities in the United Kingdom in the second half of 1880; and we then said that in July, 1880, we showed that on the average nearly two-thirds of the rise in the prices of commodities which took place during the second half of 1879 had been lost in the first half of 1880; and that in June, 1880, there had been a return in the manufacturing industries generally to a comparatively low level of prices. As regards the six months, July to December, 1880, the facts have been that in consequence of the favourable harvest for grain and roots, there had been a sensible fall in the price of all vegetable kinds of food, particularly in potatoes—so largely consumed by the poorer classes—the price of which in the autumn of 1880 was 60*s.* per ton less than in the autumn of 1879. The great colonial articles of food, sugar, rice, tea, and coffee, are cheaper during the closing months of 1880. The fall in price of articles of this class is the best assurance for the prosperity of all the home trades. In the raw materials of manufacture, cotton, jute, hemp, wool, silk, flax, hides, copper, the range of prices is moderate, but not so very low.

"The controversy which raged a few years ago concerning the danger to this country from what was alleged to be the alarming excess of imports over exports of merchandise has partly died out. It was a foolish controversy at the best, since in the first place it omitted to apply to the official declared values the corrections required for insurance, freight, profit, &c., accruing to this country over and above the custom house figures; and in the second place, because it did not allow for the imports and exports of securities in themselves as much merchandise as timber or tobacco; in the third place, because it did not take into account the enormous annual sums due to this country from investments abroad, and in foreign stock and shares. In the review for 1878 (Appendix L) the facts were discussed in detail for the thirty years 1846-75. It was then shown that to cover charges, &c., at least 5 per cent. must be deducted from the imports into the United Kingdom, and 10 per cent. added to the exports, and upon this basis the following statement for the eight years, 1873-80, is made up in order to continue the useful record of the progress of the foreign trade of the country:—

Exports and Imports. Merchandise only. United Kingdom, 1873-80. *Declared Official Values. Mln. £. (The Imports are made less by Five per Cent. for Charges, &c., Accruing in and Due to United Kingdom, and the Exports are made more by Ten per Cent. for same reason.)*

1	2	3	4	5	6	7	8	9	10	11	12	13
	Imports.			Exports.				Per Cent. of Exports to Imports.			Excess of Imports.	
				Declared Value.				Declared Value				
Calendar Year.	Declared Value.	Less 5 per Cent.	Corrected.	British Produce.	Foreign and Colonial Re-expt	Add 10 per Cent.	Corrected Exports	British Produce.	Foreign and Colonial.	Corrected Value	Declared Value.	Corrected.
								Per cnt.	Per cnt.	Per ct.	Mln. £	Mln. £
1873	371	18	353	255	56	31	342	70	15	97	60	11
'74	370	18	352	240	58	30	328	65	15	93	72	34
'75	374	19	354	223	58	28	310	60	15	90	93	44
'76	375	19	356	200	56	26	282	53	14	78	120	74
								62	15	90	345	163
1877	394	19	375	196	54	25	275	50	14	73	144	100
'78	368	18	350	192	55	26	273	52	16	78	121	77
'79	362	18	344	191	54	24	270	51	16	78	117	74
'80	410	20	390	223	53	27	303	54	13	77	134	87
								52	14	76	516	338

"The important columns as showing decisive results are columns 9, 10, 11, and columns 12, 13. From the first three columns, it appears that while the mere *declared* values would for 1873-76 give 77 (62 + 15) per cent. as the proportion of exports to imports, the corrected values give as much as 90 per cent.; in 1877-80 the declared result is 66 and the corrected 76 per cent. Similarly, columns 12, 13, show that in 1873-76 the declared excess of imports is 345 and the corrected only 163 million pounds, and in 1877-80 the declared result is 516 and the corrected 338 million pounds; in the eight years 1873-80 the declared 861 and the corrected 501 million pounds. The figures both of imports and exports for 1880 are the most favourable for some years, and we need hardly say that with a larger excess of imports in 1880, the condition of the country is on all hands admitted to be exceedingly prosperous. The result of the whole discussion is that tables of imports and exports tell only a part of the truth, and require to be read with intelligence and observation.

"We conclude with the usual comparative table of prices, 1st January, 1881, and with former dates:—

Wholesale Prices in London. Comparison of 1*st January*, 1881, *with Four Former Dates, stating in Approximate Percentages the Degree in which the Prices at* 1*st January*, 1881, *were Higher or Lower than the Prices brought into the Comparison, see Appendix* (B).

Articles.	Higher	Lower	Higher	Lower	Higher	Lower	Higher	Lower
	Than 1st January, 1880.		Than 1st January, 1879.		Than 1st January, 1878.		Than 1st January, 1870.	
	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.
Coffee	—	19	—	14	—	33	—	9
Sugar	—	9	—	—	—	7	—	—
Tea	—	30	—	11	—	11	—	—
Wheat	—	8	9	—	—	16	—	—
Butcher's meat	22	—	15	—	—	7	20	—
Indigo	—	4	20	—	4	—	30	—
Oils	—	10	—	10	—	13	—	24
Timber	6	—	—	5	—	18	—	10
Tallow	—	13	7	—	—	—	—	16
Leather	—	—	—	—	—	2	12	—
Copper	—	7	—	—	—	8	—	10
Iron	—	16	—	—	—	14	—	12
Lead	—	22	—	—	—	20	—	20
Tin	—	—	43	—	30	—	—	20
Cotton	—	—	20	—	15	—	—	38
Flax and hemp	—	9	—	5	—	—	—	24
Silk	—	2	12	—	—	6	—	25
Wool	7	—	18	—	—	—	35	—
Tobacco	—	11	2	—	—	15	—	—
Cotton cloth	7	—	25	—	—	—	—	25
Bank Note circulation of Great Britain	1	—	—	14	—	—	11	—
Total index number	—	6	9	—	—	4	—	8

Note.—This table is deduced from the details given in Appendix (B), and is read thus:—The prices of 1st January, 1881, were, as regards coffee, 19 per cent. lower than the prices of 1st January, 1880; 14 per cent. lower than at 1st January, 1879; 33 per cent. lower than at 1st January, 1878; and 9 per cent. lower than 1st January, 1870. In some cases it is impossible to arrive satisfactorily at these percentages in consequence of the wideness of the quotations given in the prices current, and also in consequence of changes in classifying the qualities of the articles—changes necessarily incident to improvement of culture and manufacture.

The great increase in the bank note circulation at end of 1878, arose from the increase of Bank of England notes in the tills of banks, consequent on the discredit arising from the failure of the City of Glasgow and West of England Banks, October—December, 1878.

The following is the Table of Contents of the "Commercial History and Review of 1880," with Appendix:—

Year 1880.—General Results of its Commercial and Financial History.
I.—Corn and Cattle Trades.
II.—Colonial and Tropical Produce.
III.—Wine Trade.
IV.—Raw Materials.
V.—Shipping and Freights.
VI.—Cotton Trade.
VII.—West Riding, &c., Woollen, Worsted, Flax, Iron, and other Trades.
VIII.—The Money Market in 1880.

APPENDIX.

A.—Wholesale Prices of Commodities in London and Manchester—Average of Six Years 1845-50;—Selected Dates, 1867-79;—and Monthly, 1880.
B.—Wholesale Prices, 1845-81—Proportionate Results.
C.—Bank of France.
D.—Banks of Germany, Belgium, and Austria.
E.—Foreign Exchanges, 1841-80.
F.—European Rates of Discount per cent. per annum, 1880.
G.—Prices of Grain—England and Wales—Calendar Years.
H.—Joint Stock Banks in London—(Group A)—Entirely Metropolitan.
I.—Metallurgical Progress in 1880.
J.—Shipping Trade.
K.—Bad Harvests and Growth of Wealth in France, 1870-80.
L.—Profitable Results of the Investments of British Funds in Foreign and Other Stocks, 1870-80.
M.—Favourable Progress of the Researches and Evidence Relative to the existence of an Eleven Years' Cycle of Seasons.
N.—Cost of the Secession War, 1861-65, to the United States.
O.—Cost to France of the War, 1870-72, with Germany and the Commune.
P.—Production of Gold and Silver, 1870-80.
Q.—Census of United States, 1880, as Compared with 1870 and 1860, and Changes to be Produced by it in the Distribution of Political Power.
R.—Establishment of a Government Council of Economists in Germany.
S.—Miscellaneous.

II.—*Lloyd's Statistics of Marine Casualties for the Year* 1880.

THE following statistics of marine losses and casualties, furnished by *Lloyd's* from the reports made to that corporation for the year 1880, are given in continuation of similar information for previous years that have appeared exclusively in the *Journal of the Statistical Society*, commencing with 1872, and are in continuation of a similar series formerly printed and published by the Committee at *Lloyd's*, but the publication of which was discontinued.

1.—*A Table showing the Number of Wrecks and Casualties to Sailing Vessels and Steamers Compared with the Average Number and*

Sailing Vessels.	First Half-Year.				Second Half-Year.				Annual Total.			
	1880.		Average 14 previous Years.		1880.		Average 14 previous Years.		1880.		Average 14 previous Years.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
1. *Missing*	46	1·08	57	1·16	37	0·62	27	0·47	83	0·81	84	0·79
2. *Abandoned*—												
Recovered	29	0·68	31	0·63	67	1·13	39	0·67	96	0·94	69	0·65
Lost	94	2·21	118	2·42	144	2·41	128	2·21	238	2·33	246	2·31
Total	123	2·89	149	3·05	211	3·54	167	2·88	334	3·27	316	2·96
3. *Collision*—												
Not damaged	242	5·70	227	4·66	251	4·21	298	5·13	493	4·83	525	4·92
Damaged	476	11·21	565	11·58	612	10·27	653	11·25	1,088	10·66	1,217	11·39
Sunk	80	1·88	73	1·50	84	1·41	82	1·42	164	1·61	156	1·46
Total	798	18·79	865	17·74	947	15·89	1,033	17·80	1,745	17·10	1,898	17·77
4. Sinking from causes other than collision	127	2·99	146	3·00	207	3·47	172	2·96	334	3·27	318	2·98
5. *Stranded*—												
Got off	662	15·59	705	14·46	789	13·24	771	13·28	1,451	14·22	1,476	13·82
Not got off	333	7·84	473	9·69	694	11·64	618	10·65	1,027	10·06	1,091	10·22
Subsequent fate not reported	60	1·41	113	2·33	202	3·39	162	2·79	262	2·56	275	2·57
Total	1,055	24·84	1,292	26·48	1,685	28·27	1,551	26·72	2,740	26·84	2,842	26·61
6. Capture	—	—	3	0·06	—	—	8	0·13	—	—	11	0·10
7. Piracy	—	—	1	0·03	—	—	2	0·03	—	—	3	0·03
8. Burnt or on fire	59	1·39	66	1·34	74	1·24	74	1·28	133	1·30	140	1·31
9. Dismasted or disabled	185	4·36	194	3·97	254	4·26	277	4·78	439	4·30	471	4·40
10. Jettison of cargo under deck	101	2·38	95	1·93	83	1·39	91	1·56	184	1·80	185	1·73
11. Jettison of deck-load or washed overboard	41	0·97	55	1·13	184	3·09	119	2·05	225	2·20	174	1·63
12. Leaky	490	11·54	502	10·28	551	9·25	641	11·05	1,041	10·20	1,143	10·70
13. Loss of anchors or chains	127	2·99	230	4·71	241	4·04	263	4·55	368	3·61	493	4·61
14. Machinery damaged, &c.	—	—	—	—	—	—	—	—	—	—	—	—
15. Mutiny, sickness, casualty to crew, or refusing duty	64	1·51	118	2·42	72	1·21	116	1·99	136	1·33	234	2·19
16. Ship dmged., &c.	1,027	24·18	1,097	22·49	1,400	23·49	1,245	21·43	2,427	23·78	2,341	21·92
17. Water-logged	4	0·09	10	0·20	14	0·24	19	0·32	18	0·18	28	0·27
Number of casualts.	4,247	—	4,877	—	5,960	—	5,804	—	10,207	—	10,681	—
Number of vessels	4,024	—	4,540	--	5,613	—	5,432	—	9,637	—	9,972	—

reported in "Lloyd's List," during the Year 1880, *and the respective Percentages thereon, Percentages for the Fourteen Previous Years.*

First Half-Year.				Second Half-Year.				Annual Total.				
1880.		Average 14 previous Years.		1880.		Average 14 previous Years.		1880.		Average 14 previous Years.		Steamers.
Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	
13	0·90	6	0·64	5	0·29	3	0·23	18	0·56	9	0·42	1. *Missing*
												2. *Abandoned*—
—	—	1	0·07	1	0·06	—	—	1	0·03	1	0·05	Recovered
2	0·14	2	0·23	—	—	2	0·17	2	0·06	4	0·20	Lost
2	0·14	3	0·30	1	0·06	2	0·20	3	0·09	5	0·25	Total
												3. *Collision*—
214	14·87	145	15·27	255	14·58	193	17·52	469	14·71	338	16·52	Not damaged
178	12·37	120	12·71	232	13·26	150	13·65	410	12·86	271	13·21	Damaged
19	1·32	11	1·16	22	1·26	16	1·42	41	1·29	26	1·30	Sunk
411	28·56	276	29·14	509	29·10	359	32·59	920	28·86	636	31·03	Total
28	1·95	20	2·10	53	3·03	25	2·24	81	2·54	44	2·17	4. Sinking from causes other than collision
												5. *Stranded*—
322	22·38	201	21·20	341	19·49	228	20·68	663	20·80	429	20·92	Got off
30	2·08	34	3·64	51	2·92	46	4·15	81	2·54	80	3·91	Not got off
6	0·42	10	1·05	15	0·86	9	0·87	21	0·66	19	0·96	Subsequent fate not reported
358	24·88	245	25·89	407	23·27	283	25·70	765	24·00	528	25·79	Total
—	—	—	—	—	—	1	0·06	—	—	1	0·05	6. Capture
—	—	—	—	1	0·06	—	—	1	0·03	—	—	7. Piracy
33	2·29	25	2·62	63	3·60	26	2·34	96	3·01	51	2·47	8. Burnt or on fire
7	0·49	8	0·81	8	0·45	11	1·02	15	0·47	19	0·92	9. Dismasted or disabled
43	2·99	19	1·98	32	1·83	16	1·46	75	2·35	35	1·70	10. Jettison of cargo under deck
19	1·32	7	0·69	46	2·63	11	1·02	65	2·04	18	0·87	11. Jettison of deckload or washed overboard
28	1·95	25	2·60	37	2·12	24	2·14	65	2·04	49	2·35	12. Leaky
14	0·97	11	1·16	13	0·74	12	1·07	27	0·85	23	1·10	13. Loss of anchors or chains
235	16·33	184	19·42	297	16·98	200	18·18	532	16·69	384	18·75	14. Machinery damaged or short of coals
8	0·55	10	1·06	7	0·40	10	0·91	15	0·47	20	0·98	15. Mutiny, sickness, casualty to crew, or refusing duty
240	16·68	109	11·54	270	15·44	119	10·83	510	16·00	228	11·15	16. Ship dmgd., &c.
—	—	—	—	—	—	—	—	—	—	—	—	17. Water-logged
1,439	—	946	—	1,749	—	1,102	—	3,188	—	2,049	—	Number of casualties
1,381	—	908	—	1,721	—	1,071	—	3,102	—	1,979	—	Number of steamers

2.—*A Table showing the Results of Wrecks and Casualties to Ship and to Cargo, with Salvage during the Year* 1880, *and the respective Percentages thereon, Compared*

Sailing Vessels.	First Half-Year.				Second Half-Year.				Annual Total.			
	1880.		Average 14 previous Years.		1880.		Average 14 previous Years.		1880.		Average 14 previous Years.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Results to Ship—												
Total loss	658	16·35	833	18·36	1,183	21·08	1,011	18·62	1,841	19·10	1,845	18·50
Constructive loss	84	2·09	86	1·88	58	1·03	79	1·46	142	1·47	165	1·65
Great damage........	362	9·00	478	10·53	578	10·30	612	11·26	940	9·75	1,090	10·93
Minor damage	1,878	46·67	2,148	47·31	2,497	44·49	2,498	46·00	4,375	45·40	4,647	46·59
Raised after sinking..................	21	0·52	22	0·49	22	0·39	19	0·36	43	0·45	41	0·42
Not damaged or results unknown	1,021	25·37	973	21·43	1,275	22·71	1,211	22·30	2,296	23·83	2,185	21·91
Total	4,024	—	4,540	—	5,613	—	5,432	—	9,637	—	9,972	—
Results to Cargo so far as reported—												
All lost	332	8·25	461	10·10	529	9·42	486	8·95	861	8·93	947	9·49
Part lost	201	5·00	240	5·28	361	6·43	296	5·45	562	5·83	536	5·37
All saved................	9	0·22	18	0·39	25	0·45	14	0·26	34	0·35	32	0·32
Forwarded	24	0·60	14	0·30	6	0·11	9	0·17	30	0·31	23	0·23
Heated	6	0·15	9	0·21	13	0·23	9	0·16	19	0·20	18	0·18
Shifted	72	1·79	59	1·30	70	1·25	69	1·28	142	1·47	128	1·27
Otherwise damaged	143	3·55	79	1·75	106	1·89	76	1·40	249	2·58	156	1·56
Salvage Services	318	7·90	435	9·58	443	7·89	488	8·99	761	7·90	926	9·28
Lives—												
Crews saved	431	10·71	437	9·63	761	13·56	514	9·47	1,192	12·37	952	9·54
Crews drowned	65	1·61	52	1·14	63	1·12	42	7·65	128	1·33	93	0·94
Lives lost so far as reported (in both ships and steamers)	654	—	950	—	1,071	—	825	—	1,725	—	1,775	—

Services, Crews Saved or Drowned and Lives Lost, so far as reported in "Lloyd's List," with the Average Number and Percentages for the Fourteen Previous Years.

First Half-Year.				Second Half-Year.				Annual Total.				Steamers.
1880.		Average 14 previous Years.		1880.		Average 14 previous Years.		1880.		Average 14 previous Years.		
Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	
												Results to Ship—
80	5·79	68	7·51	127	7·38	85	7·95	207	6·67	153	7·75	Total loss
3	0·22	4	0·46	—	—	3	0·31	3	0·10	8	0·38	Constructive loss
65	4·71	60	6·61	106	6·16	78	7·33	171	5·51	138	7·00	Great damage
641	46·41	409	45·02	791	45·96	452	42·27	1,432	46·16	862	43·53	Minor damage
15	1·09	7	0·74	14	0·81	8	0·75	29	0·94	15	0·75	Raised after sinking
577	41·78	360	39·66	683	39·69	443	41·39	1,260	40·62	803	40·59	Not damaged or results unknown
1,381	—	908	—	1,721	—	1071	—	3,102	—	1,979	—	Total
												Results to Cargo so far as reported—
46	3·33	27	3·02	52	3·02	31	2·92	98	3·16	59	2·96	All lost
90	0·65	41	4·53	127	7·38	46	4·31	217	7·00	88	4·43	Part lost
2	0·14	1	0·14	1	0·06	1	0·10	3	0·10	2	0·12	All saved
2	0·14	1	0·10	—	—	1	0·08	2	0·06	2	0·09	Forwarded
1	0·07	1	0·11	4	0·23	1	0·09	5	0·16	2	0·10	Heated
29	2·10	11	1·27	23	1·34	17	1·57	52	1·68	28	1·43	Shifted
67	4·85	21	2·37	64	3·72	27	2·55	131	4·22	49	2·49	Otherwise damaged
100	7·24	77	8·55	112	6·50	80	7·50	212	6·83	156	7·97	*Salvage Services*
												Lives—
43	3·11	34	3·72	60	3·49	37	3·40	103	3·32	71	3·58	Crews saved
14	1·01	5	0·57	10	0·58	3	0·23	24	0·77	8	0·39	Crews drowned
—	—	—	—	—	—	—	—	—	—	—	—	Lives lost so far as reported (in both ships and steamers)

3.—*A Table showing the Number of Wrecks and Casualties to Sailing Vessels reported Compared with the Average Number and Percentages*

Sailing Vessels.	First Quarter.				Second Quarter.			
	1880.		Average Fourteen previous Years.		1880.		Average Fourteen previous Years.	
	Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.
1. *Missing*	24	0·97	26	0·86	22	1·25	30	1·68
2. *Abandoned*—								
Recovered	13	0·52	19	0·63	16	0·90	11	0·64
Lost	49	1·98	72	2·32	45	2·55	46	2·57
Total	62	2·50	91	2·95	61	3·45	58	3·21
3. *Collision*—								
Not damaged	139	5·60	136	4·42	103	5·83	91	5·07
Damaged	281	11·33	349	11·31	195	11·03	215	12·02
Sunk	44	1·77	43	1·39	36	2·04	30	1·70
Total	464	18·71	528	17·12	334	18·90	337	18·79
4. Sinking from causes other than collision	73	2·94	81	2·63	54	3·06	65	3·63
5. *Stranded*—								
Got off	368	14·84	406	13·17	294	16·64	299	16·69
Not got off	196	7·90	301	9·76	137	7·75	172	9·60
Subsequent fate not reported	33	1·33	75	2·42	27	1·53	38	2·15
Total	597	24·07	782	25·35	458	25·92	509	28·44
6. Capture	—	—	2	0·05	—	—	2	0·09
7. Piracy	—	—	1	0·03	—	—	1	0·04
8. Burnt or on fire	30	1·21	36	1·17	29	1·64	29	1·65
9. Dismasted or disabled	99	3·99	115	3·71	86	4·87	79	4·41
10. Jettison of cargo under deck	63	2·54	62	2·00	38	2·15	32	1·81
11. Jettison of deckload or washed overboard	24	0·97	34	1·11	17	0·96	21	1·18
12. Leaky	296	11·94	315	10·20	194	10·98	187	10·43
13. Loss of anchors or chains	90	3·63	181	5·88	37	2·09	48	2·69
14. Mutiny, sickness, casualty to crew, or refusing duty	38	1·53	72	2·34	26	1·47	46	2·55
15. Ship damaged, loss of bulwarks, sails, &c.	617	24·88	754	24·44	410	23·20	343	19·23
16. Water-logged	3	0·12	5	0·16	1	0·06	5	0·27
Number of casualties	2,480	—	3,086	—	1,767	—	1,791	—
Number of vessels	2,336	—	2,845	—	1,688	—	1,695	—

in "Lloyd's List," during the Four Quarters of 1880, *and the respective Percentages thereon, for the same period of the Fourteen Previous Years.*

Third Quarter.				Fourth Quarter.				Sailing Vessels.
1880.		Average Fourteen previous Years.		1880.		Average Fourteen previous Years.		
Number.	Percentage.	Number.	Percentage.	Number.	Percentage.	Number.	Percentage.	
21	1·31	15	0·75	16	0·37	13	0·33	1. *Missing*
								2. *Abandoned*—
9	0·56	12	0·61	58	1·33	27	0·69	Recovered
26	1·62	34	1·78	118	2·71	94	2·43	Lost
35	2·18	46	2·39	176	4·04	121	3·12	Total
								3. *Collision*—
101	6·31	115	5·95	150	3·44	183	4·73	Not damaged
233	14·55	246	12·76	379	8·69	406	10·49	Damaged
38	2·37	33	1·70	46	1·06	50	1·28	Sunk
372	23·23	394	20·41	575	13·19	639	16·50	Total
67	4·19	67	3·45	140	3·21	105	2·71	4. Sinking from causes other than collision
								5. *Stranded*—
260	16·24	291	15·06	529	12·13	480	12·39	Got off
158	9·87	183	9·49	536	12·30	435	11·23	Not got off
53	3·31	45	2·32	149	3·42	117	3·02	Subsequent fate not reported
471	29·42	519	26·87	1,214	27·85	1,032	26·64	Total
—	—	3	0·15	—	—	5	0·12	6. Capture
—	—	1	0·06	—	—	1	0·01	7. Piracy
33	2·06	31	1·63	41	0·94	41	1·10	8. Burnt or on fire
57	3·56	99	5·10	197	4·52	179	4·61	9. Dismasted or disabled
31	1·94	30	1·59	52	1·19	61	1·56	10. Jettison of cargo under deck
10	0·62	22	1·14	174	3·99	97	2·51	11. Jettison of deckload or washed overboard
156	9·74	242	12·51	395	9·06	400	10·32	12. Leaky
22	1·37	49	2·54	219	5·02	214	5·53	13. Loss of anchors or chains
23	1·44	48	2·51	49	1·12	67	1·74	14. Mutiny, sickness, casualty to crew, or refusing duty
303	18·93	359	18·61	1,097	25·17	885	22·86	15. Ship damaged, loss of bulwarks, sails, &c.
—	—	6	0·29	14	0·32	13	0·33	16. Water-logged
1,601	—	1,931	—	4,359	—	3,873	—	Number of casualties
1,562	—	1,838	—	4,051	—	3,593	—	Number of vessels

4.—*A Table showing the Number of Wrecks and Casualties to Steamers reported in*
Compared with the Average Number and Percentages

Steamers.	First Quarter.				Second Quarter.			
	1880.		Average Fourteen previous Years.		1880.		Average Fourteen previous Years.	
	Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.
1. *Missing*	9	1·04	4	0·79	4	0·69	2	0·45
2. *Abandoned*—								
Recovered	—	—	—	—	—	—	—	—
Lost	1	0·12	1	0·25	1	0·17	1	0·21
Total	1	0·12	2	0·32	1	0·17	1	0·28
3. *Collision*—								
Not damaged	130	15·07	79	14·53	84	14·58	65	16·29
Damaged	118	13·67	71	12·98	60	10·42	50	12·33
Sunk	15	1·74	6	1·18	4	0·69	4	1·12
Total	263	30·48	156	28·69	148	25·69	119	29·74
4. Sinking from causes other than collision	17	1·97	11	2·02	11	1·91	9	2·21
5. *Stranded*—								
Got off	184	21·32	108	19·79	138	23·96	93	23·12
Not got off	18	2·08	20	3·61	12	2·08	15	3·68
Subsequent fate not reported	3	0·35	6	1·15	3	0·52	4	0·91
Total	205	23·75	134	24·55	153	26·56	111	27·71
6. Capture	—	—	—	—	—	—	—	—
7. Piracy	—	—	—	—	—	—	—	—
8. Burnt or on fire	14	1·62	12	2·20	19	3·30	13	3·18
9. Dismasted or disabled	2	0·23	5	0·92	5	0·87	3	0·66
10. Jettison of cargo under deck	26	3·01	10	1·77	17	2·95	9	2·26
11. Jettison of deckload or washed overboard	14	1·62	5	0·89	5	0·87	2	0·43
12. Leaky	16	1·85	14	2·54	12	2·08	11	2·69
13. Loss of anchors or chains	12	1·39	8	1·44	2	0·35	3	0·78
14. Machinery damaged or short of coals	119	13·79	102	18·72	116	20·14	82	20·36
15. Mutiny, sickness, casualty to crew, or refusing duty	5	0·58	6	1·02	3	0·52	4	1·12
16. Ship damaged, loss of sails, bulwarks, &c.	160	18·54	77	14·11	80	13·89	32	8·04
17. Water-logged	—	—	—	—	—	—	—	—
Number of casualties	863	—	545	—	576	—	401	—
Number of steamers	831	—	524	—	550	—	384	—

“Lloyd's List,” during the Four Quarters of 1880, *and the respective Percentages thereon, for the same period of the Fourteen Previous Years.*

Third Quarter.				Fourth Quarter.				Steamers.
1880.		Average Fourteen Previous Years.		1880.		Average Fourteen Previous Years.		
Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.	
2	0·30	—	—	3	28	2	0·32	1. *Missing*
								2. *Abandoned*—
—	—	—	—	1	0·09	—	—	Recovered
—	—	1	0·17	—	—	1	0·18	Lost
—	—	1	0·17	1	0·09	2	0·22	Total
								3. *Collision*—
119	17·60	81	19·02	136	12·67	112	16·57	Not damaged
99	14·65	62	14·56	133	12·40	89	13·08	Damaged
11	1·63	7	1·59	11	1·03	9	1·31	Sunk
229	33·88	150	35·17	280	26·10	209	30·96	Total
16	2·37	9	2·13	37	3·45	16	2·30	4. Sinking from causes other than collision
								5. *Stranded*—
152	22·48	92	21·71	189	17·61	136	20·03	Got off
15	2·22	17	3·93	36	3·36	29	4·28	Not got off
8	1·18	3	0·70	7	0·65	6	0·98	Subsequent fate not reported
175	25·88	111	26·34	232	21·62	171	25·29	Total
—	—	—	—	—	—	1	0·09	6. Capture
1	0·15	—	—	—	—	—	—	7. Piracy
19	2·81	12	2·84	44	4·10	14	2·04	8. Burnt or on fire
2	0·30	3	0·70	6	0·56	8	1·22	9. Dismasted or disabled
10	1·48	7	1·73	22	2·05	9	1·30	10. Jettison of cargo under deck
7	1·03	2	0·47	39	3·63	9	1·36	11. Jettison of deckload or washed overboard
15	2·22	8	1·97	22	2·05	15	2·26	12. Leaky
7	1·03	3	0·66	6	0·56	9	1·32	13. Loss of anchors or chains
120	17·75	88	20·58	177	16·50	113	16·68	14. Machinery damaged or short of coals
2	0·30	5	1·21	5	0·46	5	0·72	15. Mutiny, sickness, casualty to crew, or refusing duty
71	10·50	25	5·91	199	18·55	94	13·91	16. Ship damaged, loss of sails, bulwarks, &c.
—	—	—	—	—	—	—	—	17. Water-logged
676	—	425	—	1,073	—	677	—	Number of casualties
666	—	413	—	1,055	—	657	—	Number of steamers

5.—*A Table showing the Results of Wrecks and Casualties to Ship and to Cargo, with List," during the Four Quarters of* 1880, *and the respective Percentages thereon, Previous Years.*

	Sailing Vessels.							
	First Quarter.				Second Quarter.			
	1880.		Average Fourteen previous Years.		1880.		Average Fourteen previous Years.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Results to Ship—								
Total loss	368	15·75	503	17·67	290	17·18	331	19·50
Constructive loss	50	2·14	50	1·75	34	2·01	36	2·10
Great damage	191	8·18	302	10·63	171	10·13	176	10·36
Minor damage	1,144	48·97	1,407	49·47	734	43·48	741	43·69
Raised after sinking	14	0·60	12	0·44	7	0·42	10	0·57
Not damaged or results unknown	569	24·36	570	20·04	452	26·78	403	23·77
Total	2,336	—	2,845	—	1,688	—	1,695	—
Results to Cargo so far as reported—								
All lost	188	8·05	292	10·26	144	8·53	169	9·97
Part lost	118	5·05	150	5·29	83	4·92	89	5·23
All saved	7	0·30	12	0·42	2	0·12	6	0·33
Forwarded	17	0·73	8	0·29	7	0·41	5	0·31
Heated	2	0·08	7	0·23	4	0·24	3	0·16
Shifted	38	1·63	41	1·43	34	2·01	18	1·08
Otherwise damaged	80	3·42	46	1·63	63	3·73	33	1·94
Salvage services	204	8·73	284	10·00	114	6·75	151	8·89
Lives—								
Crews saved	246	10·53	272	9·56	185	10·96	165	9·73
Crews drowned	40	0·17	29	1·04	25	1·48	22	1·32
Lives lost so far as reported (in both ships and steamers)	365	—	461	—	289	—	490	—

Salvage Services, Crews Saved or Drowned and Lives Lost, so far as reported in "Lloyd's Compared with the Average Number and Percentages for the same period of the Fourteen

Sailing Vessels.								
Third Quarter.				Fourth Quarter.				
1880.		Average Fourteen previous Years.		1880.		Average Fourteen previous Years.		
Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	
								Results to Ship—
323	20·68	325	17·67	860	21·23	686	19·10	Total loss
27	1·73	37	2·02	31	0·76	42	1·16	Constructive loss
132	8·45	210	11·40	446	11·01	403	11·21	Great damage
650	41·61	811	44·12	1,847	45·59	1,687	46·96	Minor damage
8	0·51	9	0·50	14	0·35	10	0·28	Raised after sinking
422	27·02	447	24·29	853	21·06	765	21·29	Not damaged or results unknown
1,562	—	1,838	—	4,051	—	3,593	—	Total
								Results to Cargo so far as reported—
162	10·37	157	8·52	367	9·06	330	9·19	All lost
65	4·16	85	4·65	296	7·31	210	5·85	Part lost
4	0·26	5	0·28	21	0·52	9	0·25	All saved
3	0·19	5	0·26	3	0·07	4	0·12	Forwarded
7	0·45	4	0·21	6	0·15	5	0·14	Heated
17	1·09	16	0·89	53	1·31	53	1·47	Shifted
38	2·43	34	1·88	68	1·68	41	1·14	Otherwise damaged
109	6·98	161	8·74	334	8·24	328	9·12	Salvage services
								Lives—
197	12·61	162	8·83	564	13·90	352	9·80	Crews saved
22	1·41	13	0·71	41	1·01	29	0·79	Crews drowned
237	—	275	—	834	—	550	—	Lives lost so far as reported (in both ships and steamers)

6.—*A Table showing the Results of Wrecks and Casualties to Ship and to Cargo, with List," during the Four Quarters of* 1880, *and the respective Percentages thereon, Previous Years.*

	Steamers.							
	First Quarter.				Second Quarter.			
	1880.		Average Fourteen previous Years.		1880.		Average Fourteen previous Years.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Results to Ship—								
Total loss	50	6·02	40	7·70	30	5·45	28	7·25
Constructive loss	2	0·24	3	0·49	1	0·18	2	0·43
Great damage	39	4·69	34	6·48	26	4·73	26	6·79
Minor damage	378	45·49	243	46·34	263	47·82	166	43·21
Raised after sinking	11	1·32	3	0·64	4	0·73	3	0·88
Not damaged or results unknown	351	42·24	201	38·35	226	41·09	159	41·44
Total	831	—	524	—	550	—	384	—
Results to Cargo so far as reported—								
All lost	28	3·37	17	3·28	18	3·27	10	2·66
Part lost	58	6·98	22	4·13	32	5·82	20	5·08
All saved	—	—	1	0·15	2	0·36	1	0·13
Forwarded	—	—	1	0·11	2	0·36	—	—
Heated	—	—	1	0·14	1	0·18	—	—
Shifted	21	2·53	9	1·70	8	1·45	3	0·67
Otherwise damaged	36	4·33	12	2·29	31	5·64	10	2·47
Salvage services	54	6·50	40	7·70	46	8·36	37	9·71
Lives—								
Crews saved	26	3·13	20	3·79	17	3·09	14	3·63
Crews drowned	9	1·08	4	0·76	5	0·91	1	0·33
Lives lost so far as reported in both ships and steamers (see Sailing Vessels, *supra*)	—	—	—	—	—	—	—	—

Salvage Services, Crews Saved or Drowned and Lives Lost, so far as reported in "Lloyd's
Compared with the Average Number and Percentages for the same period of the Fourteen

Steamers.								
Third Quarter.				Fourth Quarter.				
1880.		Average Fourteen previous Years.		1880.		Average Fourteen previous Years.		
Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	
								Results to Ship—
44	6·61	31	7·63	83	7·87	54	8·16	Total loss
—	—	2	0·40	—	—	2	0·26	Constructive loss
38	5·70	31	7·50	68	6·44	47	7·22	Great damage
303	45·50	170	41·25	488	46·26	282	42·91	Minor damage
4	0·60	3	0·72	10	0·95	5	0·77	Raised after sinking
277	41·59	176	42·50	406	38·48	267	40·68	Not damaged or results unknown
666	—	413	—	1,055	—	657	—	Total
								Results to Cargo so far as reported—
20	3·00	13	3·11	32	3·03	19	2·86	All lost
34	5·10	18	4·29	93	8·81	29	4·38	Part lost
—	—	—	—	1	0·09	1	0·11	All saved
—	—	1	0·14	—	—	—	—	Forwarded
2	0·30	—	—	2	0·19	1	0·09	Heated
2	0·30	3	0·70	21	1·99	14	2·13	Shifted
16	2·40	11	2·71	48	4·55	18	2·67	Otherwise damaged
48	7·20	34	8·21	64	6·07	46	7·05	Salvage services
								Lives—
21	3·15	15	3·53	39	3·70	22	3·42	Crews saved
3	0·45	—	—	7	0·66	2	0·33	Crews drowned
—	—	—	—	—	—	—	—	Lives lost so far as reported in both ships and steamers (see Sailing Vessels, *supra*)

III.—*Illegitimacy in England and Wales*, 1879.

We extract the following from the last (the forty-second) Annual Report of the Registrar-General for England and Wales, dealing with the Returns of 1879:—

"*Illegitimate Births.*—The illegitimate births numbered 42,189, being in the ratio of 4·8 to every 100 children born. This is very slightly higher than the proportion in the three preceding years, in each of which it was 4·7; but with these exceptions it was the lowest proportion yet reached, having only been equalled in 1875.

"The following figures give satisfactory evidence of the gradual and continuous diminution of illegitimate births:—

	Children Born out of Wedlock to 100 Births.		Children Born out of Wedlock to 100 Births.
1846–50	6·7	1866–70	5·8
'51–55	6·6	'71–75	5·2
'56–60	6·5		
'61–65	6·4	'76–79	4·7

"The illegitimate rate varied very greatly in different counties; and it will be seen that those counties which had been distinguished by a high rate in former years retained their unfortunate pre-eminence in 1879.

"It is manifest that, just as the legitimate birth-rate in a county depends in part upon the proportion of wives of reproductive ages living there to the total population, so also must the illegitimate rate depend, at any rate in part, on the proportion of unmarried women of reproductive ages. In order to exclude this cause of diversity, a table has been prepared showing the average annual illegitimate births in each county per 1,000 unmarried women of from 15 to 45 years of age.

"It will be seen (Table 1) that though this method in some cases, *e.g.*, Durham, Staffordshire, Derbyshire, modifies very considerably the order in which the counties come, as ascertained by the usual method, yet the county differences are by no means swept away, and the two lists remain on the whole much alike. In other words, the high rates of illegitimacy in some counties, and the comparatively low rates in others, are only very partially to be explained by differences in their respective proportions of unmarried women of child-bearing ages.

"An examination of this table reveals a curious fact in regard to the geographical distribution of illegitimacy in the country. If an outline map of England and Wales be taken in which the county boundaries are distinguished, it will be found that a continuous, though irregular, line can be drawn from the east coast, where Essex and Suffolk are coterminous, across England to the Bristol Channel; and that while every county below this line, without exception, has an illegitimate rate below the average, every county above it, with only one exception, viz., Lancashire, has a rate above the average. Again it will be found that a second continuous line can be drawn from the same eastern spot, right across England and passing between North and South Wales, and that while every registration county south of this line has an illegitimate birth-rate below 20·0 per 1,000 unmarried women of from 15—45 years of age, every county north of it, excepting three, viz., Lancashire, West Riding, Cheshire, has a rate higher than 20·0. Thus England

and Wales can be divided, and not very roughly, into three zones, a southern zone with an illegitimate rate below the general average, a midland zone with illegitimacy somewhat above the average, and a northern zone with excessively high illegitimacy.

TABLE 1.—*Proportions in the several Counties of Illegitimate Births to Unmarried Women, Aged* 15—45, *and of Men and Women Signing the Marriage Register with Marks.*

1	2	3	4	5
Registration Counties.	Average Annual Illegitimate Births per 1,000 Unmarried Women Aged 15—45, 1869-78.	Average Annual Proportions of Men and Women who Signed the Marriage Register with Marks, 1869-78.		
		Men to 100 Men Married.	Women to 100 Women Married.	Persons to 100 Persons Married.
Surrey (extra-metropolitan)	8·9	11·9	9·3	10·6
Middlesex "	8·9	12·5	10·2	11·4
London	10·1	8·4	13·2	10·8
Gloucestershire	12·1	16·4	17·1	16·8
Somersetshire	12·1	20·6	19·0	19·8
Sussex	12·3	15·1	10·0	12·6
Devonshire	12·9	13·7	16·6	15·2
Hampshire	13·0	13·5	12·2	12·9
Kent (extra-metropolitan)	13·7	15·5	13·6	14·6
Dorsetshire	13·7	19·7	15·4	17·6
Warwickshire	14·4	20·9	26·5	23·7
Essex	14·8	20·8	15·7	18·3
Cornwall	15·2	22·5	26·4	24·5
Lancashire	15·3	18·7	35·4	27·1
Berkshire	15·4	18·3	13·4	15·9
Worcestershire	15·5	22·1	24·7	23·4
Wiltshire	15·6	20·3	15·9	18·1
ENGLAND AND WALES	**15·8**	**17·9**	**24·4**	**21·2**
Cheshire	16·1	17·2	27·6	22·4
Rutlandshire	16·2	15·8	11·1	13·5
Hertfordshire	16·7	27·2	22·1	24·7
Buckinghamshire	17·0	23·6	23·6	23·6
Monmouthshire	17·2	32·2	36·8	34·5
South Wales	17·3	26·1	41·4	33·8
Huntingdonshire	17·4	23·7	17·7	20·7
Northamptonshire	17·8	18·1	19·3	18·7
Oxfordshire	18·0	18·6	14·2	16·4
Cambridgeshire	18·3	25·6	20·4	23·0
Leicestershire	18·6	18·1	23·3	20·7
West Riding	18·6	18·2	32·4	25·3
Bedfordshire	19·0	27·3	32·5	29·9
Herefordshire	19·3	23·8	19·6	21·7
Suffolk	20·2	27·5	19·6	23·6
North Wales	20·5	26·1	34·8	30·5
Northumberland	20·5	12·9	21·9	17·4
Westmorland	20·6	8·8	11·6	10·2
Lincolnshire	20·7	16·5	15·6	16·1
East Riding (with York)	20·9	13·2	20·7	17·0
Derbyshire	21·2	17·5	23·1	20·3
Durham	21·6	21·3	32·6	27·0
Staffordshire	22·6	32·0	39·2	35·6
Nottinghamshire	23·1	20·0	28·0	24·0
Norfolk	25·0	26·2	20·5	23·4
Shropshire	25·8	24·5	25·5	25·0
North Riding	26·4	16·1	20·2	18·2
Cumberland	27·2	14·6	23·8	19·2

"In face of this strange and unexpected distribution, which seems too definite to be a mere chance occurrence, and yet does not appear to admit of explanation by assignable differences in social conditions, one is tempted to inquire whether there may not be local conditions, climatic or other, affecting the fecundity of women, and causing higher birth-rates in some parts than in others. If this were so, the legitimate birth-rate should be affected as well as the illegitimate, and should show corresponding variations. Are they so affected? Comparing the figures in Table G with those in Table I, we have the following results:—

Registration Counties.	Annual Illegitimate Births per 1,000 Unmarried Women of 15—45 Years of Age.	Annual Legitimate Births per 1,000 Married Women of 15—45 Years of Age.
The seventeen counties with illegitimate rates below average	13·2	285
The fourteen counties with illegitimate rates above average, but under 20·0 ..	17·7	297
The fourteen counties with illegitimate rates above 20·0	22·6	309

"It would therefore appear that, when the counties are thus grouped, there really is some agreement between the illegitimate and the legitimate rates, so far as that, in a group of counties where 1,000 unmarried women give birth to a more than average number of illegitimate children, 1,000 wives also give birth to a more than average number of legitimate offspring, and *vice versâ*. But though, when the facts are thus generally stated, the legitimate and illegitimate rates may be said to vary together, the proportions in which they vary in the three groups of counties are utterly different. If the legitimate rates varied in the same proportions as the illegitimate, which would be the necessary result on the hypothesis that the variations had one common cause, instead of being as they are in the proportions of 285, 297, 309, they would be in the proportions of 285, 382, 488. The hypothesis, then, that the curious geographical distribution of illegitimacy is explicable in more than the most trifling degree by some local condition, climatic or the like, affecting the fecundity of women, may be dismissed.

"Among the differences in social conditions in different districts are two which might reasonably be expected to exercise a potent influence on the illegitimate rate; namely, the urban or rural character of the district, and the degree in which elementary education is diffused through the population.

"As regards the effect of town life, as opposed to country life, it will be noticed that London and the immediately adjoining counties have the lowest rates of illegitimacy; and when to this fact is also added the further facts that Warwickshire and still more notably, Lancashire have exceptionally low rates, as compared with other counties in the same latitudes, it is impossible to resist the conclusion that such large towns as London, Birmingham, Liverpool, Manchester, exercise some influence by which illegitimacy is kept down; and as such towns can scarcely be assumed to be seats of exceptionally high morality, it is probable that the explanation lies in the fact, that the unrestrained passions which in other districts result in illegitimate offspring are in these large towns diverted into the channel of barren prostitution. Very possibly, were accurate statistics of this social evil procurable, the apparently contradictory evidence borne by some other districts, with populations in larger proportions of urban character, might find some explanation. Moreover, it is probable that a considerable proportion of illegitimate children are the offspring of country girls who have gone into domestic service in towns, and have there been seduced; and such girls will often return to the country for their confinement, and will thus increase the country rate of illegitimacy by the addition of births which from their origin should duly be reckoned as belonging to the towns.

"As regards the effect of education on the illegitimate rate, it might be anticipated that ignorance on the part of women would make them fall easy victims to seduction; and statistics in some measure support this natural expectation, though perhaps not so fully as might have been supposed.

TABLE J.—*Illegitimate Births in Relation to Education, by Groups of Counties.*

Counties.	Annual Proportion of Signatures by Marks.	
	Per 100 Women Married.	Per 100 Men Married.
The seventeen counties with illegitimate rates below the average	17·3	17·1
The fourteen counties with illegitimate rates above the average, but under 20·0	24·4	22·5
The fourteen counties with illegitimate rates above 20·0	24·1	19·8

"It will be seen that those counties, where the proportion of uneducated women is below the average, have also an illegitimate rate below the average; while those counties where uneducated women abound, have high rates of illegitimacy. But when these latter counties are subdivided, as in the table, into two groups, the anticipated correspondence between ignorance in women and illegitimacy in children is wanting. There are, moreover, counties, and notably Westmorland, which stand high in the scale of female education, and yet have excessively high rates of illegitimacy. There is, however, another educational factor to be considered, viz., the amount of male education. It is quite possible that a wider diffusion of elementary education among men may lead to the same result as the ignorance of women; for education leads to prudence, and prudent men marry later than imprudent men; and late marriage is often preceded by illicit connections. The figures given in the above table lend support to this view; for the superiority of men over women in the matter of elementary education is very much greater in the group where illegitimate rates are highest than in either of the other groups.

"Speaking generally, then, the recognisable influences which seem to have a tendency to increase the number of illegitimate births, in proportion to the number of unmarried women, are the absence of large towns; deficiency of elementary education among women; diffusion of elementary education among men. The curious geographical distribution of illegitimacy seems, however, hardly capable of explanation simply on this basis.

"*Sex.*—The male births numbered 447,914, and were, as always, in excess of the female births, which amounted to 432,475; the proportions being 1,036 boys to 1,000 girls. It is curious that the excess on the side of male births is gradually lessening, as has been noted in previous reports. Only twice, namely, in 1868 and 1871, was the male excess lower than in 1879, and only on one other occasion, 1877, was it as low.

IV.—*Census of England and Wales and of the United Kingdom,* 1881.

The publication of this number of the *Journal* (for June, 1881) has been delayed a few days in order to include in it a summary of the Census of England and Wales, taken on 4th April, 1881. The following is the preliminary report, of which the Census Committee have been good enough to furnish the editor of the *Journal* with an early copy:—

"At no period earlier than the commencement of the present century was it possible to form any trustworthy estimate as to the number of persons inhabiting this country; for all computations founded on domesday books, on subsidy rolls, on payments of poll or hearth tax, and the like, however ingenious they might be, involved of necessity so large an intermixture of guesswork, as to deprive their results of any substantial value.

"No proposal to ascertain the number of the population by systematic enumeration appears to have been made until the middle of the last century. On 30th March, 1753, Mr. Thomas Potter,* who sat as member for St. Germans in the House of Commons, brought in a Bill 'for taking and registering an annual account of the total number of the people, and of the total number of marriages, births, and deaths; and also of the total number of the poor receiving alms from every parish and extra-parochial place in Great Britain.' This Bill apparently had the support of the ministry of the day; for among those whose names appear on the back are Mr. George Greville, a lord of the Treasury; Lord Barrington, a lord of the Admiralty; and Mr. Charles Yorke, the Lord Advocate for Scotland.*

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* "Mr. Potter was the son of the Archbishop of Canterbury, and a barrister of the Middle Temple.

"Accustomed as we are at the present time to such enumerations, the alarm with which the proposal was received, and the virulence of language with which it was combated, cannot but excite our surprise. 'I did not believe,' said its chief opponent† in the Commons, 'that there was any set of men, or, indeed, any individual of the human species, so presumptuous and so abandoned as to make the proposal we have just heard. . . . I hold this project to be totally subversive of the last remains of English liberty. . . . The new Bill will direct the imposition of new taxes, and indeed the addition of a very few words will make it the most effectual engine of rapacity and oppression that was ever used against an injured people. . . . Moreover, an annual register of our people will acquaint our enemies abroad with our weakness.' Another opponent, Mr. Matthew Ridley, stated that he knew by letters from the town he represented, Newcastle-upon-Tyne, and from other parts that 'the people looked on the proposal as ominous, and feared lest some public misfortune or an epidemical distemper should follow the numbering.' It was further urged, that the scheme was costly and impracticable; that it was an imitation of French policy, borrowed from our natural enemies; and that it would not only be a basis for new taxation, but for a conscription. Nor was this latter fear probably without some justification; for Mr. George Greville, a lord of the Treasury, in supporting the Bill, said that 'it will be extremely useful at all times for many useful purposes; and in the case of a long war it will be absolutely necessary. For the usual methods of raising recruits for our army would not then be sufficient. We should be obliged to have recourse to that of obliging each parish to furnish a certain number.' The Bill, thus supported, passed through all its stages in the Commons by large majorities, but was thrown out on the second reading in the House of Lords.

"Nearly half a century passed away before the proposal was renewed; but when the new Bill was introduced, in November, 1800, in the House of Commons, it had the advantage of a great change which had apparently occurred in public opinion on the subject of population. The old fear that the number of the people was falling off, and that an enumeration would betray the inability of the country to furnish a due supply of soldiers for the army, had given place to a new and opposite form of alarm, namely, that the people were increasing so rapidly as to outstrip the means of subsistence. Among the causes which may be supposed to have brought about this change of opinion, probably the most powerful was the great dearth which prevailed in the country at the time when the Bill was brought forward, much of the time of both Houses of Parliament being occupied in the year 1800 in discussions on 'the present high price of provisions;' while a second cause that may fairly be assumed to have had some influence in the matter, was the attention excited by Malthus's great work, of which the first edition was published anonymously in 1798, and taught its readers that there were other aspects of the question of population than the military one.

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* "Besides these three ministers, the following members backed the Bill: Lord Hillborough, Lord Dupplin, Mr. Oswald.

† "Viz., Mr. Thornton, member for the city of York.

"The Population Bill was brought in by Mr. Abbot, member for Helston, on 20th November, 1800, and passed through all its stages without opposition. The enumeration was made on 10th March in the following year, and has been repeated ever since, without omission, in the first year of each successive decennium.

"The recent census was, therefore, the ninth enumeration of the inhabitants of this country.

"The difficulty of taking an account of the population within the limits of a single day, a limitation which is a distinctive feature in the method of enumeration adopted in this country, becomes greater and greater at each recurring decennial period, owing to the rapid growth of the people and the increasing complexity of their local sub-divisions. We are, however, pleased to be able to report that the recent enumeration was carried out with complete success, and without more than the ordinary amount of friction; and we have every reason to believe that the figures, which we have now the honour to submit to you, as the result of the operation, are as accurate as those obtained on any previous occasion. It is, indeed, most probable that, owing to the gradual dying out of the prejudices which hung about the earlier censuses, and to the increased experience of the local officials in the process of enumeration, each successive census has been more accurately taken than that which preceded it.

"The present report is, as you are aware, merely a preliminary one; and it will, perhaps, be well to explain in a few words in what respects this preliminary report differs from the more detailed account, which it will be our duty to present to you at some future period.

"The difference is one of quantity and also of quality. The preliminary report deals simply with the numbers of the people and of their habitations, and with their distribution in place. It tells, that is, how many inhabitants there are in the whole country, and in the more important of its multifarious sub-divisions, such as its sub-districts, districts, its counties, and its municipal, parliamentary, and sanitary areas, and in how many dwelling places they are housed. But as regards their ages, their occupations, their birth places, their civil conditions, and all other matters concerning which questions were asked in the householders' schedules, this preliminary report contains no information. Neither does it take cognisance of the smaller sub-divisions of the country, such as parishes, nor, indeed, of some of the larger ones, as the registration counties. All these, however, are matters which in the detailed report will receive full consideration. Such, then, is the difference between the two reports as regards quantity. There is also a not unimportant difference as regards quality. The total numbers of inhabitants and of houses in each sub-district, as given in this preliminary report, are the totals furnished to the central office by the local registrars, who obtained them by casting up the entries in the enumeration books of their respective sub-districts. The enumeration books, from which they worked, have as yet undergone no revision. The figures, therefore, in this preliminary report are based on unrevised returns. But for the purposes of the detailed report each enumeration book will be carefully read through, all detectable errors be corrected, and a fresh casting of the entries, thus corrected, be made. The preliminary totals are rarely perfectly correct. In almost every sub-district some correction has to be made on revision. The amount of error, however, is usually very small, so that for ordinary practical purposes these totals may be used with a tolerable certainty of not falling into any serious error. Moreover, in larger aggregates than sub-districts, such as counties, great cities or towns, and the like, the errors in the totals of the individual sub-districts have a tendency to correct each other, and to such an extent, that the difference between the unrevised and the revised totals of all England and Wales, with a population of nearly 23 millions, amounted at the census of 1871 to no more than 8,158.

"The error was still more insignificant in respect to the number of inhabited houses; for, out of a total of more than 4 millions and a quarter, the difference between the revised and the unrevised figures was but 85. The preliminary figures, therefore, may be used without fear for the larger divisions of the country, and still more for the country itself, and it is only in the case of the smaller sub-divisions, such as sub-districts, that caution is required.

"The total number of persons returned as living in England and Wales at midnight on 4th April, 1881, was 25,968,286.

"This was an increase of 3,256,020, or of 14·34 per cent., upon the numbers living at the previous census of 3rd April, 1871, and was almost exactly equivalent to the addition of another London with all its inhabitants to the population.

"The rate of increase was higher than in any decennium since 1831-41, when it was 14·52. In the two succeeding decades, 1841-51 and 1851-61, the rate fell, first to 12·65 and then to 11·93; but in 1861-71 the rate again rose to 13·19, to be, as already noted, still further advanced to 14·34 in the ten years just completed.

"The rate of increase in the aggregate population of England and Wales is almost entirely determined by two factors, namely, the birth-rate and the death-rate; for, in comparison with these, emigration and immigration have but an insignificant effect. The rapid growth of the past decennium was due to the fact that the birth-rate was unusually high, while the death-rate was still more unusually low. That is to say, the additions were somewhat above the average, while the losses were far below it.

	Mean Annual Birth-Rate.	Mean Annual Death-Rate.
1841–51	32·61	22·33
'51–61	34·15	22·25
'61–71	35·24	22·50
'71–81	35·35	21·27

"The higher birth-rate in 1871-81, as compared with the preceding decade, implies the addition of 26,774 extra members to the community, while the lower death-rate implies the survival of 299,385 persons who with the previous rate of mortality would have died.

"The difference between the total number of births and the total number of deaths in the ten years, or 'the natural increment of the people,' amounted to 3,425,982, or to an increase of 15·08 per cent. upon the population at the beginning of the period; and as the actual increase, as determined by enumeration, was 14·34 per cent., the combined effects of all other movements of the population, including emigration and immigration, resulted in a loss of no more than 0·74 per cent. in the whole period.

"How closely the growth of the population is determined by the 'natural increment,' and in what small degree comparatively it is affected by other causes, is seen in the following table, which gives the population and the rate of increase for three successive decennial periods, as they would have been, if determined simply by the natural increment, and as they were found actually to be on enumeration:—

Census Years.	Population.		Difference of 'Natural Increment' Population from 'Enumerated' Population.	Increase per Cent. in Previous Decade.		Difference of Natural Increment Rate from Enumeration Rate.
	As determined by 'Natural Increment' only.	As Actually Enumerated.		As determined by 'Natural Increment' only.	As determined by Actual Enumeration.	
1861	20,188,335	20,066,224	122,111	12·61	11·93	+ 0·68
'71	22,791,234	22,712,266	78,968	13·58	13·19	+ 0·39
'81	26,138,248	25,968,286	169,962	15·08	14·34	+ 0·74

The slight difference apparent at each period was due to emigration, or rather to the difference between the number of emigrants and the number of immigrants, using these terms in a somewhat wide sense to embrace all additions and all losses other than by births and deaths.* Neither the actual number of emigrants nor the actual number of immigrants can be told with more than vaguely approximative accuracy. The difference between the two, however, as deduced in the above table, amounted in the past decade to 169,962, the balance, as in each of the two preceding decennia, being on the side of the emigrants.

"In the course of the last half century the population of England and Wales has increased 86·9 per cent. Supposing a similar rate of increase to be maintained, the population just enumerated would be doubled in the year 1936. Such a supposition is, however, purely hypothetical, and we have scarcely more reason to assume that the rate of the last fifty years will be maintained for fifty-five years to come, than that a similar rate prevailed in former periods; and how far that was from being the case is shown by the fact that on such an hypothesis a single pair of persons living in the year A.D. 571 would have produced the whole of the present population of England and Wales.

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* "'Emigrant' as used above includes: (1) Emigrants proper; (2) Persons gone abroad as travellers, &c.; (3) Persons who removed from England to other parts of the United Kingdom; (4) Any persons who died in the decade, but whose deaths were not registered at the date of the census; (5) Any excess of English or Welsh persons in army, navy, or merchant service abroad, over similar persons at previous census. 'Immigrant' of course is used to include the opposites of these groups.

"The return of emigrants includes most of group 1, and also many of group 2; but of the other groups no numerical account whatsoever can as yet be given.

"Of the 25,968,286 persons enumerated 12,624,754 were males, and 13,343,532 were females. This gives an excess of females over males of 718,778, an excess which would, however, be considerably lessened, were the army, and navy, and merchant service abroad not excluded from the reckoning.

"To each 100 males enumerated there were 105·7 females. This is a slightly higher proportion of females than existed at the previous census. In fact the proportion of females to males has been steadily increasing at each census since 1851, having been successively 104·2, 105·3, 105·4, 105·7.

"The rate of increase in the last ten years was 14·16 per cent. for males, and 14·50 for females. But the 'natural increment' of the males, that is, the number of male births *minus* the number of male deaths, was 1,704,144, or 15·4 per cent., of the male population in 1871, while the natural increment of the females was 1,721,838, or only 14·8 per cent. of the female population. From this it follows that the 169,962 persons who constituted the balance of emigrants over immigrants consisted of 138,324 males, and 31,638 females, and that the increase in the proportion of females in the population was entirely due to an excess of male emigrants.

	Males.	Females.
Persons enumerated in 1871	11,058,934	11,653,332
Births *minus* deaths in decade (April, 1871—April, 1881)	1,704,144	1,721,838
Population in 1881 by 'natural increment' only	12,763,078	13,375,170
Population enumerated in 1881	12,624,754	13,343,532
Difference, or excess of emigrants over immigrants	**138,324**	**31,638**

"The number of families (single lodgers to whom schedules were supplied counting as separate families) was 5,643,353, which was an increase of 594,337 upon the number in 1871.

"The number of inhabited houses, that is, of houses in which any person slept on the night of 3rd April, was 4,833,844, showing an increase of 574,727 in the decennium. There were also 380,684 unoccupied houses and 46,759 in course of construction.

"The average number of occupants to each inhabited house was 5·37, against an average of 5·33 at the preceding enumeration.

"The inhabited houses, therefore, did not increase in equal proportion with the population. But this is probably to be explained by the fact that the houses in towns are, as a rule, more capacious than the houses in rural districts, and that the urban population, as will be shown later on, increased in a much higher ratio than the rural population.

	Inhabited Houses.	Houses Building.	Families and Single Lodgers supplied with Schedules.
1871, 3rd April	4,259,117	37,803	5,049,016
'81 4th ,, ...	4,833,844	46,759	5,643,353
Increase in the ten years	574,727	8,956	594,337

"The increase of the population was by no means equably spread over the whole of the country. In 253 of the 630 districts, and in 986 of the 2,175 sub-districts into which the country is divided for registration purposes, there was an actual falling off in the number of inhabitants. Even when larger aggregates, such as counties, are taken, there are some in which the population declined, while in the remainder the rates of increase were excessively unequal. In the following list those counties in which the population rose are arranged in the order of their rates of increase:—

Counties in which the Population Increased in the Past Decade.

Surrey	31·5	per cent.	Worcestershire	12·2	per cent.
Glamorganshire............	28·6	,,	Northamptonshire........	11·7	,,
Durham	26·6	,,	Berkshire	11·2	,,
Essex	23·5	,,	Hampshire	9·0	,,
Nottinghamshire	22·6	,,	Monmouthshire	8·1	,,
Lancashire	22·5	,,	Carmarthenshire	7·9	,,
Derbyshire	21·5	,,	Lincolnshire	7·6	,,
Leicestershire	19·2	,,	Gloucestershire	7·1	,,
Yorkshire	18·5	,,	Hertfordshire................	5·6	,,
Merionethshire	17·6	,,	Flintshire	5·3	,,
Sussex............................	17·5	,,	Denbighshire................	3·6	,,
Warwickshire................	16·2	,,	Suffolk	2·3	,,
Kent	15·2	,,	Bedfordshire	2·2	,,
Middlesex	14·9	,,	Norfolk	1·4	,,
Cheshire	14·6	,,	Somersetshire................	1·2	,,
Staffordshire	14·3	,,	Oxfordshire	0·9	,,
Cumberland	13·8	,,	Wiltshire	0·7	,,
Northumberland	12·3	,,	Devonshire	0·5	,,
Carnarvonshire	12·3	,,	Buckinghamshire	0·2	,,

"In each of the fourteen remaining counties the population declined. They are arranged in the following list in the order of their rates of decrease:—

Counties in which the Population Decreased in the Past Decade.

Cornwall	9·1	per cent.	Montgomeryshire	2·7	per cent.
Radnorshire	7·4	,,	Dorsetshire	2·4	,,
Huntingdonshire	6·4	,,	Westmorland	1·3	,,
Cardiganshire	4·4	,,	Cambridgeshire	0·8	,,
Brecknockshire	3·6	,,	Pembrokeshire	0·2	,,
Herefordshire	3·5	,,	Anglesea	0·1	,,
Rutlandshire	2·9	,,	Shropshire	0·05	,,

"The inhabitants of the country may be divided for practical purposes into an urban and a rural population. Such a division can, however, only be roughly approximative; in the first place, because the terms urban and rural themselves have no very precise meaning, and, secondly, because many places which must indisputably be reckoned as urban have no distinct boundaries.

"The method of division usually adopted is to select those districts and sub-districts in which are situated the chief towns, and to consider the inhabitants of these as representing the urban population, while the inhabitants of all the other districts and sub-districts are considered to be of rural character.

"The urban population, as thus determined, consists of the inhabitants of the chief towns and their immediate neighbourhood, while the rural population includes the inhabitants of the smaller towns as well as of the strictly country parishes.*

"Adopting this method of dividing the population, we have the following results:—

	Area in Acres.	Years.	Population Enumerated.	Increase in preceding Decennium.	Increase per Cent. in preceding Decennium.
England and Wales	37,319,221	1851	17,927,609	—	—
		'61	20,066,224	2,138,615	11·93
		'71	22,712,266	2,646,042	13·19
		'81	25,968,286	3,256,020	14·34
Town Population, *i.e.,* inhabitants of the districts and sub-districts which include the chief towns	3,184,419	1851	9,155,964	—	—
		'61	10,933,234	1,777,270	19·41
		'71	12,910,647	1,977,413	18·09
		'81	15,444,808	2,534,161	19·63
Country Population, *i.e.,* inhabitants of the remainder of England and Wales which comprises the smaller towns and the country parishes	34,134,802	1851	8,771,645	—	—
		'61	9,132,990	361,345	4·12
		'71	9,801,619	668,629	7·32
		'81	10,523,478	721,859	7·36

"The urban population, therefore, using the term in the sense of the inhabitants of the chief towns only or their immediate neighbourhood, stood to the remaining or rural population in the proportion of 147 to 100; the proportion in 1871 having been 132 to 100. This change in the proportions was not due to any decrease of growth in the rural population, which fully maintained the rate of increase reached in the previous decade, but to a considerable rise in the rate of growth of the urban population, this rate having mounted from 18·09 per cent. in the previous ten years to 19·63 in the decade just concluded.

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* "These are the urban and rural populations of the registrar-general's quarterly returns.

"The rural population, however, as determined by this method, includes the inhabitants of a very large number of places, which, though not of sufficient magnitude to rank as 'chief towns,' are yet of such a size that their inhabitants can scarcely be considered as living under rural conditions. It would be highly desirable to ascertain, at any rate approximately, what was the number of the urban population, if the name be extended so as to include this class of persons.

"The recent division of the country into sanitary areas, some of which are styled urban and the rest rural sanitary districts, furnishes the best available basis for such a calculation.

"At the time of the late census there were 967 urban sanitary districts, besides the 39 districts within the jurisdiction of the Metropolitan Board of Works. The aggregate population of these 1,006 districts was 17,648,354, while the population of the remaining or rural sanitary districts amounted to only 8,319,932. The proportion, therefore, of persons living in places which, for one reason or another, were considered to be of sufficient importance to exercise urban powers to persons living elsewhere was 212 to 100, or somewhat more than two to one.

"Among these urban sanitary districts, however, there were many of such small dimensions, that they have scarcely a right to be reckoned as towns, and these should be excluded from the list. The line of exclusion can only be an arbitrary one. But perhaps as good a limit as can be taken for our present purpose is one that shuts out all districts with populations under 3,000. This would leave 770 urban sanitary districts (or 771, reckoning London as one), each with a population of more than 3,000 persons. Assuming these 771 districts to represent the urban element, and the remainder to represent the rural element in the population, the following would be an approximate account of the distribution of the people of England and Wales:—

Urban Sanitary Districts, with Populations of	Number of Districts.	Aggregate Population, 1881.	Percentage of Population of England and Wales, 1881.
100,000 and upwards	20*	7,696,132	29·7
50,000—100,000	28	1,850,088	7·1
20,000— 50,000	96	2,883,702	11·1
10,000— 20,000	160	2,214,366	8·5
3,000— 10,000	467	2,640,738	10·2
Total **Urban** population	771	17,285,026	66·6
„ **Rural** „	—	8,683,260	33·4
Population of England and Wales	—	25,968,286	100·0

* This includes the entire district of the Metropolitan Board of Works, which is here reckoned as a single urban sanitary district.

"The urban sanitary districts are of such recent creation, and were often constructed with so little reference to previously existing boundaries, that it is impossible in many cases to ascertain what was the precise population at the date of previous censuses, and thus to calculate the comparative growths of the urban and rural elements in the country. If, however, we assume that the rate of growth has been the same for the total aggregates as for those parts for which the necessary data are procurable, the following figures will represent the respective growths of the present* urban and rural population:—

	Population.			Percentage of Population of England and Wales.		
	1861.	1871.	1881.	1861.	1871.	1881.
Urban population	12,501,461	14,713,316	17,285,026	62·3	64·8	66·6
Rural ,, ...	7,564,763	7,998,950	8,683,260	37·7	35·2	33·4
Population of England and Wales....	20,066,224	22,712,266	25,968,286	100·0	100·0	100·0

"The figures in this table show the increasing predominance of the urban as compared with the rural element. In 1861 there were 165 dwellers in towns to 100 dwellers in rural districts, but in 1871 the number had risen to 184, and in 1881 had reached 199.

"There are 198 parliamentary boroughs in England and Wales, neither their number nor their boundaries having been changed in the past ten years. The facts for each of these are given separately in Table VII. It may be interesting, however, to show here in one view the growth of these boroughs as an aggregate during the past thirty years:—

Population as Enumerated.

Year of Enumeration.	In Parliamentary Boroughs.	Outside Parliamentary Boroughs.	Total.
1851	7,438,679	10,488,930	17,927,609
'61	8,638,569	11,427,655	20,066,224
'71	10,649,997†	12,062,269†	22,712,266
'81	12,269,793	13,698,493	25,968,286
Increase in Three successive Decades.			
1851–61	1,199,890	938,725	2,138,615
'61–71	2,011,428†	634,614†	2,646,042
'71–81	1,619,796	1,636,224	3,256,020
Increase per Cent. in Three successive Decades.			
1851–61	16·1	8·9	11·9
'61–71	23·3†	5·6†	13·2
'71–81	15·2	13·6	14·3

† Between 1861 and 1871 there were considerable changes of electoral areas which affected the figures for that period.

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* "It must be remembered that many of the districts, which are at present urban, would not have been so reckoned in 1871, and still less in 1861, for many

"The population of the twenty great English towns, of which weekly statistics are published by the general register office, amounted to 7,578,815, being an increase of 16·9 per cent. upon the numbers enumerated in 1871.

"The rate of increase varied very widely in the different towns, but in one only was there no increase at all. This exception was Manchester, where the population was found to have slightly fallen. With this, however, must be taken into consideration the fact that the closely adjoining town of Salford showed an increase of no less than 41·2 per cent. Taking the two continuous towns together, there was an increase of 8·8 per cent.

The Twenty Towns in the Order of their Rates of Increase in the Past Decennium.

Town.	Increase per Cent., 1871-81.	Increase per Cent., 1861-71.	Increase per Cent., 1861-81
Salford	41·2	21·8	72·0
Oldham	34·8	14·2	53·9
Nottingham*	34·2	13·9	52·9
Leicester	28·5	39·9	79·8
Hull	26·5	24·8	57·9
Bradford*	24·4	37·3	70·8
Leeds	19·3	25·1	49·2
Sheffield	18·5	29·6	53·6
Sunderland	18·3	20·5	42·6
London	17·2	16·1	36·0
Birmingham	16·6	16·1	35·4
Brighton*	16·3	17·5	36·6
Bristol	13·1	18·5	34·0
Newcastle-upon-Tyne	13·1	17·7	33·1
Portsmouth	12·7	19·8	35·0
Liverpool	12·0	11·1	24·4
Wolverhampton	10·9	12·2	24·4
Norwich	9·3	7·3	17·3
Plymouth	9·2	9·8	20·0
Manchester	− 2·8	+ 3·7	+ 0·8

* The municipal boundaries of Brighton, Nottingham, and Bradford were extended during the decade 1871-81, but all the rates of increase given in the above table relate to the populations of the extended areas.

"The increase of the nineteen provincial towns in the above list was 16·5 per cent. during the last decade, while that of London was 17·2 per cent. In the previous decennium (1861-71) the respective rates had been 16·1 for London, and 17·2 for the provincial towns. Thus London has increased in a somewhat higher ratio, and the nineteen provincial towns in a somewhat lower ratio, than was the case in the preceding decennium.

"The population of London was 3,814,571, and by itself somewhat exceeded the aggregate population of the nineteen large provincial towns, which amounted to 3,764,244.

"No fewer than 560,311 persons were added to the inhabitants

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places are doubtless included, which at those dates had less than 3,000 inhabitants. It may be assumed, therefore, that the urban population for 1861 and 1871, as given in the table, is overstated.

of the metropolis in the course of the decade, a number exceeding the entire population of the largest of the provincial towns.

"The population of London has almost exactly doubled itself in the course of forty-one years, whereas the population of the rest of England and Wales has taken fifty-seven years to multiply in an equal degree. The metropolis has thus been gaining in its proportions as compared with the country at large; and whereas at the beginning of the century out of ten inhabitants of England and Wales one lived in London, the proportion has now risen to one out of seven.*

Year of Enumeration.	Population in England and Wales and in London at the Nine Enumerations.		
	England and Wales.	London.	Persons in London to 100 in England and Wales.
1801	8,892,536	958,863	10·78
'11	10,164,256	1,138,815	11·20
'21	12,000,236	1,378,947	11·49
'31	13,896,797	1,654,994	11·91
'41	15,914,148	1,948,417	12·24
'51	17,927,609	2,362,236	13·18
'61	20,066,224	2,803,989	13·97
'71	22,712,266	3,254,260	14·33
'81	25,968,286	3,814,571	14·69

"The increase of population in the past, as also in the preceding decade was entirely peripheral. In the centre of London is a compact area, consisting of ten registration districts, in which, owing to the substitution of business premises for dwelling houses, the population has for a long period been undergoing diminution. The inhabitants of this central area decreased by 7·8 per cent. in the course of the past ten years, having also diminished by 5·8 per cent. in the preceding decade.

Districts in Central Area.†	Decrease per Cent.			Districts in Central Area.†	Decrease per Cent.		
	1861-71.	1871-81.	1861-81.		1861-71.	1871-81.	1861-81.
St. George Hanover Square	0·0	4·1	4·1	Holborn	2·5	7·2	9·5
Westminster	3·0	9·2	11·9	London City	33·0	32·5	54·8
Marylebone	1·5	2·7	4·1	Shoreditch	1·7	0·5	2·2
St. Giles	1·0	15·5	16·3	Whitechapel	3·0	6·8	9·6
Strand	14·3	18·9	30·5	St. George-in-the-East	1·7	2·2	3·8

† The number of 'inhabited houses' in this central area has diminished by 6,388 in the last ten years, while the number of 'uninhabited houses,' that is, of houses not occupied at night, has increased by 3,045. In other words, 6,388 houses previously used as dwellings have been replaced by 3,045 houses not used for any but business purposes.

"Round this central area, and constituting the rest of inner London, is a circle of districts, all of which have undergone more or less rapid increase, the growth, speaking generally, being greater the further the district is from the centre. The population in this circle increased 27·6 per cent. in the past ten years, and 28·4 per cent. in the preceding decade.

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* "More precisely, the proportions were 1 : 9·3 in 1801, and 1 : 6·8 in 1881.

Districts in Rest of Inner London.	Increase per Cent.			Districts in Rest of Inner London.	Increase per Cent.		
	1861-71.	1871-81.	1861-81.		1861-71.	1871-81.	1861-81.
Kensington	48·8	24·4	85·1	Poplar	46·9	34·5	97·6
Fulham	64·9	73·8	186·6	St. Saviour, Southwark	0·7	11·5	12·2
Chelsea	12·1	23·9	38·9				
Hampstead	69·0	40·8	137·8	St. Olave, Southwark	20·1	10·0	32·1
Pancras	11·4	6·7	18·8				
Islington	37·6	32·2	81·9	Lambeth	28·6	21·7	56·5
Hackney	50·0	49·2	123·8	Wandsworth	77·6	68·2	198·8
Bethnal Green	14·3	5·7	20·8	Camberwell	55·7	67·6	161·0
Stepney	2·0	1·4	3·4	Greenwich	17·0	30·5	52·7
Mile End Old Town	27·5	13·3	44·5	Lewisham	61·2	42·2	129·3
				Woolwich*	−2·8	10·1	7·0

* Woolwich district forms an exception to the otherwise general rule, that those districts which increased in the past decade also increased in the preceding decade.

"Nor does this represent the entire growth of the metropolis. For outside this circle of districts is still further an outer ring, not included within the limits of inner London, but only separated from it by an arbitrary line, in which the growth has been even more rapid; its population having increased no less than 50·4 per cent. in the past decennium and 50·8 in the preceding one. That is to say, it has doubled itself one and a quarter times in the course of twenty years.

"The growth of greater London, that is of inner London together with this outer ring, amounted to 22·6 per cent. in the past decade, and to 47·8 per cent. in the past twenty years.

"The following table will serve to give a summary view of the changes of population described above as having occurred in the several constituent parts of greater London:—

	Population in			Rates of Increase or Decrease per Cent.		
	1861.	1871.	1881.	1861-71.	1871-81.	1861-81.
Central area	1,010,962	952,529	877,782	− 5·8	− 7·8	−13·2
Rest of inner ring	1,793,027	2,301,731	2,936,789	+28·4	+27·6	+63·8
Inner ring, or London proper	2,803,989	3,254,260	3,814,571	+16·1	+17·2	+36·0
Outer ring	418,731	631,381	949,741	+50·8	+50·4	+126·8
Greater London	3,222,720	3,885,641	4,764,312	+20·6	+22·6	+47·8

"So far, this report has referred exclusively to England and Wales, that is to that portion alone of the kingdom in which the enumeration was carried out under our immediate superintendence.

By the courtesy, however, of our colleagues in Scotland and Ireland, and with the assistance of the enumeration books forwarded to us for compilation, by the respective governors of the Isle of Man and the Channel Islands, we are enabled to submit in summary, subject to any future correction of the, as yet, unrevised figures, a statement of the population of the whole of the British Isles on the night of the census. In order to make the statement as complete as possible, a provisional return is also added of the soldiers and sailors, both in the royal navy and in the merchant service, known to have been abroad at the date of the enumeration.

	Area in Acres.	Persons.	Population on 4th April, 1881.	
			Males.	Females.
United Kingdom	77,828,893	35,246,562	17,253,947	17,992,615
England	32,597,398	24,608,391	11,947,726	12,660,665
Wales	4,721,823	1,359,895	677,028	682,867
Scotland	19,496,133	3,734,370	1,797,565	1,936,805
Ireland	20,819,892	5,159,839	2,522,804	2,637,035
Isle of Man	145,325	53,492	25,646	27,846
Channel Islands	48,322	87,731	40,334	47,397
Army, navy, and merchant seamen abroad	—	242,844	242,844	—

Population of United Kingdom at Successive Censuses.

	1821.	1831.	1841.
United Kingdom	21,272,187	24,392,485	27,057,923
England	11,281,883	13,090,523	15,002,443
Wales	718,353	806,274	911,705
Scotland	2,091,521	2,364,386	2,620,184
Ireland	6,801,827	7,767,401	8,196,597
Isle of Man	40,081	41,000	47,975
Channel Islands	49,427	62,710	76,065
Army, navy, and merchant seamen abroad*	289,095	260,191	202,954

	1851.	1861.	1871.	1881.
United Kingdom	27,745,949	29,321,288	31,845,379	35,246,562
England	16,921,888	18,954,444	21,495,131	24,608,391
Wales	1,005,721	1,111,780	1,217,135	1,359,895
Scotland	2,888,742	3,062,294	3,360,018	3,734,370
Ireland	6,574,278	5,798,967	5,412,377	5,159,839
Isle of Man	52,387	52,469	54,042	53,492
Channel Islands	90,739	90,978	90,596	87,731
Army, navy, and merchant seamen abroad*	212,194	250,356	216,080	242,844

* The returns for 1821 and 1831 included the army, navy, and merchant seamen at home as well as abroad. The return for 1841 included seamen on board vessels in home ports. The returns after that date were limited to men abroad.

Increase or Decrease per Cent. of the Population in Successive Decades.

	1821-31.	1831-41.	1841-51.	1851-61.	1861-71.	1871-81.
United Kingdom	14·7	10·9	2·5	5·7	8·6	10·7
United Kingdom exclusive of Ireland	**14·9**	**13·5**	**12·2**	**11·1**	**12·4**	**13·8**
England	16·0	14·6	12·8	12·0	13·4	14·5
Wales	12·2	13·1	10·3	10·5	9·5	11·7
Scotland	13·0	10·8	10·2	6·0	9·7	11·1
Ireland	14·2	5·5	−19·8	−11·8	− 6·7	−4·7
Isle of Man	2·3	17·0	9·2	0·2	3·0	−1·0
Channel Islands	26·9	21·3	19·3	0·3	− 0·4	−3·2
Army, navy, and merchant seamen abroad	—	—	—	18·0	−13·7	12·4

Note.—Where no *minus* sign is prefixed the figures denote an increase.

Proportion per Cent. of the Population Residing in Different Parts of the Kingdom.

	1821.	1831.	1841.	1851.	1861.	1871.	1881.
England	53·0	53·6	55·4	61·0	64·6	67·5	69·8
Wales	3·4	3·3	3·4	3·6	3·8	3·8	3·8
Scotland	9·8	9·7	9·7	10·4	10·4	10·6	10·6
Ireland	32·0	31·8	30·2	23·7	19·8	17·0	14·6
Isle of Man	0·2	0·2	0·2	0·2	0·2	0·2	0·2
Channel Islands	0·2	0·3	0·3	0·3	0·3	0·3	0·3
Army, navy, and merchant seamen abroad*	1·4	1·1	0·8	0·8	0·9	0·6	0·7

* See note appended to last table but one.

"The total population of the United Kingdom, as shown in the above tables, consisted on 4th April last, of 35,246,562 persons. This was an increase of 3,401,183 upon the enumeration of 1871, and was equivalent to an average daily addition of 931 persons to the community throughout the decade, the daily increase in the preceding decade having been 705.

"The decennial rate of increase was no less than 10·7 per cent., which was considerably higher than the rate in any of the three preceding decades, in which it had been successively 2·5, 5·7, and 8·6. This gradual rise in the rate of increase in each successive decade since 1841-51 was due in the main, though not entirely, to the fact that the decrease of the population of Ireland, which in 1841-51 was at the rate of 19·8 per cent., has become less and less in each succeeding decennium. If Ireland be excluded from the calculation, it will be found that the rate of increase for the remainder of the United Kingdom has been, comparatively speaking, uniform."

The following is a list of the tables appended to the foregoing preliminary report:—

Table		
I.	**England & Wales**	Houses and Population enumerated in 1881 and 1871.
II.	,,	Houses and Population enumerated at each of the Censuses 1801-81.
III.	,,	Increase of Inhabited Houses and of Population between the successive Enumerations from 1801 to 1881.
IV.	,,	Houses and Population enumerated in the Counties in 1871 and 1881.
V.	,,	Inhabited Houses and Population enumerated in 1871 and 1881 in the Counties and in the Parliamentary Divisions of Counties.
VI.	**London**	—Inhabited Houses and Population within various limits in 1871 and 1881.
VI*a*.	,,	Inhabited Houses and Population in 1871 and 1881 within the limits of the Metropolis Local Management Act, 18 and 19 Vict., cap. 120.
VI*b*.	,,	Inhabited Houses and Population in 1871 and 1881 within the Divisions of the London School Board District.
VI*c*.	,,	Inhabited Houses and Population in 1871 and 1881 within the limits of the London Police Districts.
VI*d*.	,,	Inhabited Houses and Population in 1871 and 1881 within the Ten Metropolitan Parliamentary Boroughs.
VII.	**England & Wales**	Inhabited Houses and Population in the 198 Parliamentary Boroughs, 1871 and 1881.
VIII.	,,	Inhabited Houses and Population in 1,006 Urban Sanitary Districts, including the 39 Metropolitan Districts.
VIII*a*.	,,	Inhabited Houses and Population in Municipal Boroughs not co-extensive with Urban Sanitary Districts.
IX.	,,	Inhabited Houses and Population in 1871 and 1881, and ascertained Increase or Decrease of Population in the interval, in the Eleven Registration Divisions.
X.	,,	Inhabited Houses and Population in Superintendent Registrar's Districts in 1871 and 1881.
XI.	,,	Inhabited Houses and Population in Registration Sub-districts in 1871 and 1881.
XII.	**Islands in the British Seas**	Houses and Population enumerated on 4th April, 1881.
XIII.		Population enumerated at each of the Censuses, 1821 to 1881.
XIV.	**Emigration**	—Number of Emigrants from the United Kingdom during the Ten Years 1871 to 1880.

V.—*The Population of the United States.*

From the New York *Review* :—

“The superintendent of the census has so far completed the returns of the population as to be able to present to congress the total figures for each State and territory and for the larger cities. The returns show that the population of the whole United States in 1880 was 50,152,866 against 38,558,371 in 1870—an increase of 11,594,495, or at the rate of 30 per cent. The following figures show the population in each State in 1880, to which we have added those of 1870, the better to facilitate comparison; we have also classified the States according to geographical sections :—

	1880.	1870.
New England—		
Maine	648,845	626,915
New Hampshire	346,984	318,300
Vermont	332,286	330,551
Massachusetts	1,783,012	1,457,351
Rhode Island	276,528	217,253
Connecticut	622,683	537,454
Total	4,010,338	3,487,824
Middle States—		
New York	5,083,810	4,382,759
,, Jersey	1,130,983	906,096
Pennsylvania	4,282,786	3,521,951
Delaware	146,654	125,015
Maryland and Dist. of Col.	1,112,260	912,594
West Virginia	618,433	442,014
Total	12,374,926	10,290,429
Western States—		
Ohio	3,198,239	2,665,260
Michigan	1,636,331	1,184,059
Indiana	1,978,360	1,680,637
Illinois	3,078,769	2,539,891
Wisconsin	1,315,480	1,054,671
Minnesota	780,806	439,706
Iowa	1,624,620	1,194,020
Nebraska	452,433	122 993
Missouri	2,168,804	1,721,295
Kansas	995·961	364,399
Colorado	194,649	39,864
Total	17,424,852	13,006,795

	1880.	1870.
Southern States—		
Alabama	1,262,794	996,992
Arkansas	802,564	484,471
Florida	267,351	187,748
Georgia	1,539,048	1,184,109
Kentucky	1,648,708	1,321,011
Louisana	940,100	726,915
Mississippi	1,132,592	827,922
North Carolina	1,400,047	1,071,361
South "	995,622	705,606
Tennessee	1,542,463	1,258,025
Texas	1,592,574	818,579
Virginia	1,512,806	1,225,163
Total	14,636,669	10,808,397
Pacific States—		
California	864,683	560,247
Nevada	62,265	42,491
Oregon	174,767	91,723
Total	1,101,718	693,661
Territories	606,643	271,166
Grand total, United States	50,152,866	38,558,371

"The increase of population during the last ten years has hardly kept pace with what may be regarded as the normal ratio. It exceeds the percentage of the decade 1860-70, which, owing to the interruptions of war, showed a gain of only 22·6 per cent. During antecedent decades, however, the increase ranged considerably higher, being in 1850-60, 35·5 per cent., in 1840-50, 36 per cent., and in 1830-40, 32·6 per cent. It will therefore be seen that while the increase, within the last ten years, has been numerically very large and in excess of all former decennial periods, yet it does not equal the ratio of the ante-war decades. How far this relative decadence may be attributed to the continued effects of the war, to the severe mercantile depression prevailing from 1873 to 1879, or to still other causes, is a question we cannot discuss within our present limited space.

"The following figures indicate the comparative progress of population in the different geographical sections:—

	1880.	1870.	Increase.	
			Number.	Per Cent.
New England	4,010,338	3,487,824	522,514	15·0
Middle States	12,374,926	10,290,429	2,084,497	20·2
Western "	17,422,572	13,006,894	4,415,678	33·7
Southern "	14,636,669	10,808,397	3,128,272	30·5
Pacific "	1,101,718	693,661	408,057	58·9
Territories	606,643	271,166	335,477	123·7
Total United States	50,152,866	38,558,371	11,594,495	30·0

"As usual, the New England States show the lowest rates of increase, the gain being 15 per cent. or half the average rate of the whole country. Next, come the Middle States, with an increase of 20 per cent.; which is an improvement upon the next previous decade, when the ratio of gain was 19 per cent. The West has failed to maintain its former rate of progress. The increase in that section is 4,415,678, or at the rate of 34 per cent. This increase is about half-a-million larger than that which occurred between the years 1860 and 1870, when the gain was 3,914,000; but during that decade the percentage of progress was 43 per cent. or 9 per cent. greater than during the last ten years; which shows that the distinctively farming class is not expanding in the same ratio as it did even during the war decade. The Pacific States show a high percentage of increase, viz., 59 per cent.; but the actual numerical gain is not important, and is perhaps less than might be expected from what has been done to develop that section, the increase being only 408,057 persons.

"The really remarkable feature in these returns is the progress in the Southern States. From a population of 10,808,397 in 1870, they have risen to 14,636,669 in 1880, an increase of 3,828,272. In 1870, the Southern States ranked numerically almost evenly with the Middle States; now they surpass them by 2,262,000. During the war decade, the increase of that section was at the rate of 5½ per cent.; within the last ten years, the progress has been 35·4 per cent., which is a higher ratio than has been realised even in the Western States. When it is considered how little the south has benefited by immigration, while the west has received immense reinforcements from that source, this comparison between the relative progress in the cotton States and the grain States is very striking; and, accepting the maxim that the growth of population is largely regulated by the prosperity of the people, these facts indicate how utterly the material condition of the South must have been misrepresented and misunderstood during the last few years.

"One of the striking features of this increase of southern population is the important measure in which the coloured race has contributed to it. The census bulletins have not yet given the numbers of white and coloured population respectively for all the States; we have been enabled, however, to compile the following comparative statement of race population for nine of the States, Mississippi, Tennessee and Texas being alone omitted:—

	1880.	1870.	Increase.
Alabama—			Per cnt.
White	661,986	521,384	27·0
Coloured	600,358	475,510	26·25
Arkansas—			
White	591,611	362,115	63·35
Coloured	210,954	122,169	72·5
Georgia—			
White	814,218	638,926	27·5
Coloured	724,756	545,142	32·9
Louisiana—			
White	455,063	362,065	25·6
Coloured	485,200	364,210	33·25
North Carolina—			
White	867,467	678,470	27·8
Coloured	532,533	391,650	36·0

	1880.	1870.	Increase.
South Carolina—			Per cnt.
White	391,071	289,677	35·0
Coloured	604,235	415,814	45·3
Florida—			
White	141,249	96,057	47·0
Coloured	125,317	91,689	37·5
Kentucky—			
White	1,377,077	1,098,692	25·4
Coloured	271,522	222,210	22·2
Virginia—			
White	880,376	712,089	25·0
Coloured	631,827	512,831	23·2
Total Nine States—			
White	6,180.118	4,759,465	30·0
Coloured	4,186,602	3,141,225	33·3

"In 1870, the white population in these nine States was 4,759,465; in 1880, it had risen to 6,180,118—an increase of 1,420,653. In the same years respectively the coloured population was 3,141,225 and 4,186,602—an increase of 1,035,377. The ratio of gain in the white was 30 per cent. and in the coloured 3·33 per cent.

"These facts are highly suggestive as to the future political status of the South, and of the coloured element of its population. They also indicate the growing commercial importance of that section. Those who imagined that the coloured population would dwindle and decay when emancipation threw it upon its own resources, may now learn how mistaken were their conceptions as to the 'peculiar institution' being essential to the conservation of that race. Those who predicted that the white population, when deprived of their property in slaves and of the profits on their labour, would forsake the South and leave it devastated, may discover from these facts that the superior race find it quite as profitable to employ free labour as slave. We have before us the remarkable fact that, so far as growth of population is an evidence of material prosperity, the South shows a higher record of growth during the last ten years than any other section."

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Glasgow. Remarks by Medical Officer, to accompany Mortality Tables of the City, to December, 1880	Dr. J. B. Russell
Authors, &c.—	
Boddy (E. M.). The History of Salt. 95 pp., 8vo. London 1881	The Author
Bourbinot J. G.). The Intellectual Development of the Canadian People. xi and 128 pp., cloth, 8vo. Toronto, 1881	,,
Cernuschi (Henri). The Monetary Conference, Questions addressed to the British and Belgian Delegates by. 32 pp., 8vo. London, 1881	,,
Coldstream (J. P.). On the Increase of Divorce in Scotland. 16 pp., 8vo. Edinburgh, 1881	,,
Cossa (Dr. L.). Guide to the Study of Political Economy (translated from the second Italian edition). xvi and 237 pp., 8vo. 1880	Messrs. Macmillan and Co.
Fossick's Fifty Years' History of the Iron Trade. A Diagram, 1881	R. R. Mabson, Esq.
Goehlert (Dr. Vinc). Zeitschrift für Ethnologie (Sonder-Abdruck). Die Geschlechtsverschiedenheit der Kinder in den Ehen. 8vo. Berlin, 1881	The Author
Guyot (Yves). Bibliothèque des Sciences Contemporaines. La Science Economique. 470 pp., 8vo. Paris, 1881	Mons. C. Reinwald

Donations—Contd.

Donations.	By whom Presented.
Authors, &c.—*Contd.*	
Hewat (A., F.F.A.) On Mortality Tables, introducing a new Table of Mortality. 11 pp., diagram, 8vo. Glasgow, 1881	The Author
Hill (Charles S.). American or Foreign Ships; Which? 44 pp., 8vo. New York, 1881	”
Kőrösi (Joseph). Plan du Dépouillement du Recensement de Budapest. 38 pp., 8vo. 1881	”
Legoyt (A.). Le Suicide Ancien et Moderne. viii and 468 pp., 8vo. Paris, 1881	”
Lovely (W.). Where to go for Help. 2nd edition, 16 pp, 24mo. London, 1881	”
Meitzen (August). Die Irische Landfrage und die Stein-Hardenbergische Gesetzgebung. (Separatabzug aus Jahrbuch für Gesetzgebung, &c., im Deutschen Reiche.) 8vo. Leipzig, 1881	”
Mulhall (M. G.). Balance-sheet of the World, 1870-80. viii and 143 pp., plates, 8vo. London	E. Stanford, Esq.
Peek (Sir H.) Tables on the Trade of the United Kingdom with France from 1871-80, and two previous Decennial Periods. Folio	The Compiler
Robÿns (J.). Numero dei Divorzi e Separazioni in Belgio, Olanda e Francia. 27 pp., imp. 8vo. Roma, 1881	The Author
Seyd (E.). The Monetary Conference in Paris and England. 24 pp., 8vo. London, 1881	”
Seyd (R.). Tables of Statistics of Failures in the United Kingdom during 1879-80. 1 sheet, folio	The Compiler
Smee (A. H.). Suggestions as to lines for Future Research. 62 pp., plates and diagrams, 8vo. London, 1881	The Author
Thubron (R.). Supplement to the second edition of Dock and Port Charges of Great Britain and Ireland. viii and 232 pp., maps and views, 8vo. London, 1881	”
Weeks (J. D.). Industrial Arbitration and Conciliation. 7 pp., 8vo. 1879	”
,, Industrial Arbitration and Conciliation in France and England. 16 pp., 8vo. Pittsburgh, 1879	
,, Industrial Conciliation and Arbitration in New York, Ohio, and Pennsylvania. 75 pp., 8vo. Boston, 1881	
,, Report on the Practical Operation of Arbitration and Conciliation in the settlements of differences between Employers and Employés in England. 47 pp., 8vo. Harrisburg, 1879	
Wirth (Max). Die Krisis in der Landwirthschaft und Mittel zur Abhülfe. viii and 352 pp., 8vo. Berlin. 1881	,,
Westgarth (W.). The Paris Monetary Conference and the Silver Question. 4 pp., 4to. London, 1881	”
Zimmerli's Statistical Diagram Chart, a specimen blank form of	Mr. Zimmerli

Donations—Contd.

Donations.	By whom Presented.
Societies, &c.—	
Actuaries, Journal of the Institute of. No. CXXII, January, 1881	The Institute
Arts, Journal of the Society of. Current numbers	The Society
British Iron Trade Association. Report for 1881	J. S. Jeans, Esq., Secretary of the Association
Bankers, Journal of the Institute of. Parts 4, 5, and 6, vol. ii, 1881	The Institute
Civil Engineers, Proceedings of the Institution of, 1880-81. Part I, plates, 8vo.	The Institution
Eccentric Club, Particulars of the. Part II, 196 pp., 8vo. London, 1881	Wm. Dawbarn, Esq.
Howard Association, the—	
The Diminution of Pauperism (1878). 4 pp., 8vo.	The Association
Summarised Information on Capital Punishment (1881). 4 pp., 8vo.	
National Habits of Providence (1881). 4 pp.	
Juvenile Offenders (1881). 4 pp.	
Labourers' Friend, the. April, 1881	The Society for Improving the Condition of the Labouring Classes
Liverpool Literary and Philosophical Society. Proceedings for 1878-79 and 1879-80. Plates, cloth, 8vo.	The Society
Mechanical Engineers, Institution of. Proceedings, October, 1880, and January, 1881. Plates	The Institution
Newcastle-upon-Tyne Public Libraries. Catalogue of the Central Lending Department. 329 pp., 8vo. 1881	The Librarian
Royal Agricultural Society, Journal of the. 2nd series, vol. xvii, part I, 1881	The Society
Royal Asiatic Society, Journal of the. Vol. xiii, parts 1 and 2, 1881	
Royal Geographical Society, Proceedings of the. Parts 4, 5, and 6, vol. ii, 1881	
Royal Institution of Great Britain, Proceedings of the. December, 1880. Plates, 8vo	The Institution
Royal Medical and Chirurgical Sotiety, Proceedings of the. Part 1, vol. ix	The Society
Royal Society, Proceedings of the. Nos. 210 and 211, vol. xxxi; No. 212, vol. xxxii	
Royal United Service Institution. Journal, vol. xxv, Nos. 109 and 110. 1881. Maps and plates	The Institution
Surveyors, Transactions of the Institution of. Parts 9—12, vol. xiii	"
Social Science Association—	
Sessional Proceedings. No. 3, vol. xiv	The Association
Transactions for 1880. xlviii and 880 pp.	

Vol. XLIV.] [Part III.

JOURNAL OF THE STATISTICAL SOCIETY,

SEPTEMBER, 1881.

Report *of the* Council *for the* Financial Year *ended* 31*st December*, 1880, *and for the* Sessional Year *ending* 28*th June*, 1881, *presented at the* Forty-Seventh Anniversary Meeting *of the* Statistical Society, *held at the Society's Rooms, Somerset House Terrace (King's College Entrance), Strand, London, on the* 28*th of June*, 1881; *and also, of the* Proceedings *at the Meeting.*

Dr. W. A. Guy, F.R.S., *a Past President, in the Chair.*

The circular convening the meeting having been read, and the minutes of the last ordinary meeting read and confirmed, the following report was read:—

Report of the Council.

The Council have the honour to submit their forty-seventh annual report.

In the past year the number of members has risen from 783 to 808. The result compares as follows with the average of the previous ten years:—

Particulars.	1880.	Average for the Previous Ten Years.
Number of Fellows on 31st December	808	584
Life Members included in the above	129	87
Number lost by death, withdrawal or default	49	34
New Fellows elected	74	72

Since the 1st of January last thirty new Fellows have been elected.

The financial condition of the Society also shows satisfactory progress, and an increase in the receipts from all sources in 1880, viz., 1,902*l.*, as compared with 1,698*l.* for the previous year. By reference to the accounts at the end of this report, it will be seen that each item of the receipts, shows an increase on the previous year. The chief increase occurs under the head of compositions, which item, however, it should be borne in mind, is of a more fluctuating character than the other sources of income. The real progress in the more permanent sources of income, is brought out by the subjoined analysis of the receipts of the Society for the last five years:—

Receipts per	1880.	1879.	1878.	1877.	1876.	Average for Five Years.
	£	£	£	£	£	£
Dividends	75	65	55	41	38	55
Annual Subscriptions	1,317	1,300	1,197	1,117	1,054	1,197
Compositions	273	126	294	252	168	223
Journal sales	202	176	169	151	159	171
Advertisements in Journal	35	31	17	36	19	28
	1,902	1,698	1,732	1,597	1,438	1,674

The investments of the Society at the present time are increased to 3,000*l.* of New Three per Cents, as compared with 2,700*l.* a year ago. The following is a comparison of certain particulars for last year, with the average of the previous ten years:—

Particulars.	1880.	Average of the Previous Ten Years.
	£	£
Balance at beginning of year	84	254
Receipts from all sources	1,902	1,323
Cash balance at end of year	180	243
Surplus of assets over liabilities	4,614	2,839

A comparison of the principal figures at intervals of ten years from the formation of the Society, will further show the progress that has been made:—

Comparison of Condition of Society at Intervals of Ten Years, on 31*st Dec.*

Year.	Number of Fellows.	Income.	Expenditure.	Amount Invested.	Liabilities.	Cash Balance.
		£	£	£	£	£
1840	416	793	800	867	275	53
'50	380	703	672	867	396	65
'60	374	706	788	867	126	216
'70	403	852	839	1,136	135	214
'80	808	1,902	1,517	2,572	214	180

It will be noticed that great progress has been made during the last decade, the number of Fellows, the income, and amount invested, having been more than doubled in that time. The following table gives the particulars for each year of that period:—

Year.	Number of Fellows.	Income.	Expenditure.	Amount Invested.	Liabilities.	Cash Balance.
		£	£	£	£	£
1871	431	880	804	1,136	125	290
'72	454	1,112	806	1,322	135	411
'73	530	1,248	1,097	1,507	135	376
'74	588	1,377	1,491*	1,507	460	62
'75	607	1,231	1,733*	1,207	216	94
'76	611	1,438	1,340*	1,207	187	192
'77	683	1,597	1,286	1,398	201	312
'78	746	1,732	1,345	1,902	168	194
'79	783	1,698	1,427	2,283	238	84
'80	808	1,902	1,517†	2,572	214	180

* The expenditure of these years was affected by the heavy expenses incident to moving into new premises.

† The expenditure of this year is affected by the expenses attending the alteration and redecoration of the meeting room, referred to further on.

Confirmation of the steady progress of the Society is found in the increasing sale of the Society's *Journal*, and may again be referred to with satisfaction. The average of the annual sales

		£
In the ten years	1841-50 was	56
,,	'51-60	83
,,	'61-70 ,, ...	97
,,	'71-80 ,, ...	155

The amount realised in 1880 as already shown was 202*l.*, which exceeds that of any previous year.

The Inaugural Address of the President was given on the reassembling of the Society in November, and the papers read and the members elected at each of the monthly meetings are recorded as follows:—

SESSION 1880-81.

First Ordinary Meeting, Tuesday, 16*th November*, 1880.

The President, JAMES CAIRD, Esq., C.B., F.R.S., in the Chair.

The following were elected Fellows:—

Henry Russell Evans.
Charles Beddell.
Sir R. Temple, Bart., G.C.S.I., D.C.L.
Edward C. Maddison.
R. Stewart Menzies.
Walter Hazell.
John B. Gates, jun., A.C.A.
Henry Charles Burdett.
Henry Ling Roth.
George Woodyatt Hastings, M.P.
R. H. Jones.
Frank Debenham.
Gerard Van de Linde, A.C.A.
George Finlay.
William R. Huggard, M.A., M.D., M.R.C.P. London.

(*a*) The President delivered an Inaugural Address, and presented the "Howard Medal" for 1880 (with 20*l.*) to

HENRY PERCY POTTER, ESQ., F.R.C.S.,

for his Essay on

"The Oriental Plague in its Social, Economical, Political, and "International Relations: Special Reference being made to the "Labours of Howard on the subject."*

(*b*) Dr. F. J. Mouat, F.R.C.S., read a "Note on the Tenth "Census of the United States of America."

Second Ordinary Meeting, Tuesday, 21*st December*, 1880.

The President, JAMES CAIRD, Esq., C.B., F.R.S., in the Chair.

The following were elected Fellows:—

Colonel E. C. J. Williams, R.E.
Joshua Henry Lamprey.
Sir E. W. Stafford, K.C.M.G.
William Lovely, R.N.
Frederick Nevill Clarke.
E. White Wallis, F.M.S.
John Towne Danson.
Charles E. Goodhart.
Robert Henryson Caird.
George Taylor.
Robert Castle.
Thomas Sherwood Smith.

Mr. R. Price Williams read a Paper on "The Question of the "Reduction of the Present Postal Telegraph Tariff."

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* The essay will be found in the December number of the *Journal* for 1880.

Third Ordinary Meeting, Tuesday, 18*th January,* 1881.

JAMES HEYWOOD, Esq., F.R.S., Honorary Vice-President, in the Chair.

The following were elected Fellows:—

William Henry Gatty.
Malcolm Dillon.
George Bishop.
Frederick N. Newcome.
E. Eltham Johnson.
Marco Besso.
Ebenezer Walker Henry.

(*a*) Mr. Wynnard Hooper read a Paper on "The Method of "Statistical Analysis."

(*b*) Mr. J. B. Martin, Honorary Secretary, read a Paper by Mr. J. T. Danson on "The Growth of the Human Body."

Fourth Ordinary Meeting, Tuesday, 15*th February,* 1881.

The President, JAMES CAIRD, Esq., C.B., F.R.S., in the Chair.

The following were elected Fellows:—

Thomas Robins Bolitho.
Arthur Duff Morison.
R. B. Perring.
Samuel Parr.
Robert Alexander Meyer.
Henry Maunder Williams.

Mr. C. Walford read a Paper on "The Number of Deaths "from Negligence, Violence, and Misadventure in the United "Kingdom and some other Countries."

Fifth Ordinary Meeting, Tuesday, 15*th March,* 1881.

The President, JAMES CAIRD, Esq., C.B., F.R.S., in the Chair.

The following were elected Fellows:—

Frederick Brooksbank Garnett.
Archibald Hewat.
Rev. Alfred Caldecott, M.A.
William H. Greening.

The undermentioned was elected an Honorary Member:—

John S. Billings, Esq., M.D., of Washington.

Dr. W. A. Guy, F.R.S., read a Paper on "Temperature and its "Relation to Mortality: an Illustration of the Application of the "Numerical Method to the Discovery of Truth."

Sixth Ordinary Meeting, Tuesday, 12th April, 1881.

The Treasurer, R. B. Martin, Esq., M.P., in the Chair.

The following were elected Fellows:—

S. G. Goodrich.
Frederick Stancliffe.
B. Barrington-Kennett, M.A., LL.M. Cantab.
Francis Henry Skrine.
James Salmon.
Robert Paulson Spice, C.E.
R. M. Dobell.

Mr. H. R. Droop read a Paper on "Methods of Electing "Representatives."

Seventh Ordinary Meeting, Tuesday, 17th May, 1881.

The President, James Caird, Esq., C.B., F.R.S., in the Chair.

The following were elected Fellows:—

Lionel Edward Gresley Carden.
Charles McCay Macdonald.

Mr. R. Denny Urlin read a Paper on "The History and Statistics of the Irish Incumbered Estates Court, with Suggestions for "a Tribunal with Similar Jurisdiction in England."

Eighth Ordinary Meeting, Tuesday, 21st June, 1881.

The President, James Caird, Esq., C.B., F.R.S., in the Chair.

The following were elected Fellows:—

Richard Knight Causton, M.P.
Right Hon. The Earl of Jersey.
Right Hon. The Earl of Lytton.
Rev. Canon D. J. Mackay.

Mr. Hyde Clarke read a Paper on "The English Stations in "the Hill Regions of India: their Value and Importance, with "some Statistics of their Products and Trade."

The Council venture to hope that the above synopsis of the operations of the past year will be accepted as evidence that the work of the Statistical Society is being carried on with unimpaired efficiency, and that, to quote the language of previous reports, it "fully maintains the position it has obtained as respects the number "of its members, and its power to fulfil the objects for which it "was established."

While fully recognising the merits of the papers read during the Session 1880-81, they would call especial notice to the papers of Dr. Guy and Mr. Wynnard Hooper, both of which are of particular value as illustrating the statistical method in the abstract. On the other hand, the inaugural address of the President was a worthy introduction to other papers dealing with questions of practical and present importance.

The success of the evening meetings has been greatly furthered by the alterations which have been carried out in the arrangement of the rooms, whereby the ventilation has been very much improved, and the comfort of the readers of the papers no less than that of the audience has been increased. At the same time arrangements have been made with the Institute of Chemistry for sub-letting to them, at an increased rental, a portion of the upper part of the premises.

The House Accommodation Committee has now been dissolved, and a vote of thanks has been conveyed by the Council, on behalf of the Society, to the members thereof, and especially to its chairman, Dr. Guy, for their exertions in endeavouring to find suitable premises for the Society elsewhere. The thanks of the Society have also been conveyed to the Council of King's College, for the courtesy and liberality with which they responded to the request made to them as to the alteration of the meeting room, and the improved terms of the present occupancy. At the same time, in view of the short tenure under which the present premises are held, the question of securing house-room elsewhere must still be considered as one of pressing importance.

Sir Thomas Brassey, K.C.B., M.P., resigned his position as President of the Society at the end of his first year of office, having accepted an appointment under the Crown that no longer allowed him any available leisure; while the Council wish to express their regret at the loss of his services, they cannot but congratulate the Society in having secured as his successor Mr. James Caird, C.B., F.R.S. The lamented death of Mr. Archibald Hamilton caused a vacancy in the Council, which was filled, under Rule 15, by the election of Sir John Lubbock, Bart., M.P.

The increase of the Society's Library, and the need of a revision of the catalogue, has been and still is a matter under the careful consideration of the Council, who will use their best endeavours to give to the members of the Society every facility for availing themselves of the valuable books of reference contained in the library. The Council are also preparing for publication a library catalogue.

While congratulating the Society on the continued increase in the number of its Fellows, the Council cannot but bear in mind that without a steady annual increase, the Society can hardly be said to keep pace with the rapid growth of the population, wealth, and intelligence of the country; and it is hoped that the Fellows generally will use their best exertions to add to the roll of the Society the names of any of their friends by whom the prestige of the Society will be not only maintained but increased. In no long time the Statistical Society will enter on its fiftieth year of existence, and the Council do not think it unreasonable to express a hope that by that time the Society will number not less than a thousand Fellows.

The Society was well represented by its Fellows at the Meeting of the British Association at Swansea in August, 1880, and also at the Meeting of the National Association for the Promotion of Social Science in October, at Edinburgh.

The subject of essays in competition for the Howard Medal of 1882 (with 20*l.* added) is to be—

" On the State of the Prisons of England and Wales in the " Eighteenth Century, and its Influence on the Severity and Spread " of Small Pox among the English Population at that Period. The " Essays also to present a Comparison of the Mortality by Small " Pox among the Prison Population of England and Wales during " the Eighteenth Century, with the Mortality from the same cause " during the last Twenty Years."

The Society has had to lament the death of the following members since the last anniversary meeting:—

Fellows.

Russell Scott.
The Right Hon. Lord Belper, P.C., F.R.S. (*c*)
James Macgregor Mackay.
Joseph Thomas Mitchell, M.R.C.S.
James Hertz.
James Whishaw (*c*).
Archibald Hamilton, J.P. (*c*).
Professor W. B. Hodgson, LL.D.
John Whitwell, M.P.
Deputy John Hawkins Elliott.
George Gibson Richardson, J.P.
John William Tottie (*c*).
W. H. Charlton.
Matthew Henry Marsh (*c*).
Daniel Gurney.
Ernest Seyd (*c*).
James Macdonald.
John Alexander Hankey.

Honorary Member.

His Honour Sir Redmond Barry, Kt.

(*c*) Indicates those who on one or more occasions had served on the Council.

Of these Lord Belper was an original member of the Society, while several had served the Society as members of the Council, as auditors, or as contributors of valuable papers.

The following list of Fellows proposed as President, Council, and Officers of the Society for the Session 1881-82, is submitted for the consideration of the meeting:—

Council and Officers for 1881-82.

PRESIDENT.

JAMES CAIRD, C.B., F.R.S.

COUNCIL.

Arthur H. Bailey, F.I.A.
T. Graham Balfour, M.D., F.R.S.
Alfred Edward Bateman.
G. Phillips Bevan.
Stephen Bourne.
Sir George Campbell, K.C.S.I., M.P.
J. Oldfield Chadwick, F.R.G.S.
Hammond Chubb, B.A.
Hyde Clarke.
Rt. Hon. the Earl of Dunraven, K.P.*
Robert Giffen.
Rowland Hamilton.*
Frederick Hendriks.
Noel A. Humphreys.
Robert Lawson.
Professor Leone Levi, LL.D.
Sir John Lubbock, Bart., M.P., F.R.S.
John B. Martin, M.A.
Richard Biddulph Martin, M.P.
Frederic John Mouat, M.D., F.R.C.S.
Francis G. P. Neison.
Evan C. Nepean.*
George Palmer, M.P.*
Robert Hogarth Patterson.
Henry D. Pochin.
Frederick Purdy.
Sir W. Rose Robinson, K.C.S.I.*
Thomas A. Welton.
Cornelius Walford, F.I.A.
R. Price Williams, C.E.*

Those marked * are new Members of Council.

TREASURER.

Richard Biddulph Martin, M.P.

SECRETARIES.

Hammond Chubb. | Robert Giffen.
John B. Martin.

FOREIGN SECRETARY.

Frederic J. Mouat, M.D.

The abstract of receipts and expenditure, and the balance sheet of assets and liabilities at 31st December, 1880, are subjoined, together with the report of the Auditors on the accounts for the same year:—

(I.)—ABSTRACT *of* RECEIPTS *and* PAYMENTS *for the* YEAR *ending* 31*st* DECEMBER, 1880.

RECEIPTS.				£	s.	d.
Balance in Bank, 31st December, 1879 ...	£80	13	1			
Balance of Petty Cash.	3	16	6	84	9	7
Dividends on 2,400*l.* New 3 per Cents...	35	5	–			
Ditto on 2,700*l.* ditto...	39	9	9	74	14	9
Subscriptions received for:—						
37 Arrears	£77	14	–			
575 for the year 1880...............	1,207	10	–			
15 in Advance	31	10	–	1,316	14	–
627						
13 Compositions				273	–	–
Journal Sales	£202	–	4			
Journal, Advertisements in	35	–	11	237	1	3
				£1,985	19	7

PAYMENTS.				£	s.	d.
Rent	£200	–	–			
Less sublet	118	15	–	81	5	–
Salaries, Wages, and Pension				339	16	6
Journal, Printing	£512	16	2			
,, Annual Index	5	5	–			
,, Shorthand Reporters	19	8	6			
,, Literary Services	35	14	–	573	3	8
Advertising				53	6	1
Ordinary Meeting Expenses				26	18	6
Library				80	5	9
Stationery and Sundry Printing ...				76	12	9
Postage and delivery of Journals, &c.				59	10	8
Fire and Lights				10	12	6
Incidental Expenses				50	8	–
Furniture and Repairs				143	15	3
Grant with Howard Medal				20	–	–
Howard Medals				1	10	–
				1,517	4	8
Purchase of 300*l.* New 3 per Cents				288	15	–
				£1,805	19	8
Balance at Drummond's	159	17	–			
Balance of Petty Cash	20	2	11	179	19	11
Total...............				£1,985	19	7

(Signed)
"J. O. CHADWICK,
"J. WHITCHER, JR.,
"G. HARVEY SIMMONDS,
Auditors."

29*th April*, 1881.

(II.)—BALANCE SHEET *of* ASSETS *and* LIABILITIES, 31*st* DECEMBER, 1880.

LIABILITIES.

	£	*s.*	*d.*	£	*s.*	*d.*
Per Accounts for—						
December number of the *Journal*, &c.	150	9	3			
Annual Index to ditto	5	5	–			
Miscellaneous printing, &c.	21	5	3			
Stationery, &c.	11	17	2			
Advertisements.........	13	3	5			
Miscellaneous (as per List)............	12	2	–			
				214	2	1
Balance in favour of the Society...				4,613	11	3
				£4,827	13	4

ASSETS.

		£	*s.*	*d.*
Cash Balances		179	19	11
2,700*l.* New 3 per Cents, cost		2,572	1	5
Property: Estimated Value of, viz.—				
Books in Library	£1,000			
Journals in Stock	500			
Furniture and Fixtures	500			
		2,000	–	–
Arrears of Subscriptions recoverable (say)		75	12	–
		£4,827	13	4

(Signed) "J. O. CHADWICK,
"J. WHITCHER, JR.,
"G. HARVEY SIMMONDS, } *Auditors.*"

29*th April*, 1881.

(III.)—BUILDING FUND (ESTABLISHED 10*th July*, 1873), BALANCE SHEET, 31*st* DECEMBER, 1880.

LIABILITIES.

	£	*s.*	*d.*
Amount of Fund from last Account	163	8	1
Dividends Received and Invested during the year 1880	5	9	9
Total	£168	17	10

ASSETS.

						£	*s.*	*d.*
1880.	Invested as per last Account in Metropolitan Consolidated 3½ per Cent. Stock. in the name of the Treasurer, R. B. Martin, Esq.—							
		£160	–	8	cost	163	8	1
22 Jan.	Purchased	1	5	7	,,	1	7	4
15 Dec.	Ditto	3	18	3	,,	4	2	5
	Total......	£165	4	6	,,	£168	17	10

(Signed) "J. O. CHADWICK,
"J. WHITCHER, JR.,
"G. HARVEY SIMMONDS, } *Auditors.*"

29*th April*, 1881.

"STATISTICAL SOCIETY,

"*29th April*, 1881.

"AUDITORS' REPORT FOR 1880.

"*The Auditors appointed to examine the Treasurer's Accounts of the Society for the Year* 1880,

"REPORT:—

"*That they have carefully compared the Entries in the Books with the several Vouchers for the same, from the* 1*st January to the* 31*st December*, 1880, *and find them correct, showing the Receipts* (*including a Balance of* 84*l.* 9*s.* 7*d. from* 1879) *to have been* 1,985*l.* 19*s.* 7*d.*, *and the Payments* (*including the purchase of* 300*l. New Three per Cents*), 1,805*l.* 19*s.* 8*d.*, *leaving a Balance in favour of the Society of* 179*l.* 19*s.* 11*d. at* 31*st December*, 1880.

"*They have also had laid before them an Estimate of the Assets and Liabilities of the Society at the same date, the former amounting to* 4,827*l.* 13*s.* 4*d.*, *and the latter to* 214*l.* 2*s.* 1*d.*, *leaving a Balance in favour of the Society of* 4,613*l.* 11*s.* 3*d.*

"*The amount standing to the credit of the Building Fund at the end of the year* 1880 *was* 165*l.* 4*s.* 6*d.*, *Metropolitan* $3\frac{1}{2}$ *per Cents, invested in the name of the Treasurer, R. B. Martin, Esq., M.P.*

"*They further find that at the end of the year* 1879 *the number of Fellows on the list was* 783, *which number was diminished in the course of the year to the extent of* 49, *by Deaths, Resignations, and Defaulters, and that* 73 *new Members were elected, and the Resignation of one Fellow was cancelled, leaving on the list, on the* 31*st December*, 1880, 808 *Fellows of the Society.*

(Signed) "J. O. CHADWICK,
"J. WHITCHER, JR., } *Auditors.*"
"G. HARVEY SIMMONDS,

The CHAIRMAN (Dr. Guy, F.R.S.) said it was now his duty to move, "That the Report of the Council, with the Abstract of the Receipts and Payments, the Balance Sheet of the Assets and Liabilities, and the Report of the Auditors for 1880, be adopted, entered in the Minutes, and printed in the *Journal*." He regretted that the President had been prevented from attending the meeting, but he had no doubt it was his wish to be present if circumstances had permitted. In consequence of the President's absence, it devolved upon him (the speaker), without previous preparation, to make this motion, and fortunately he was able to congratulate the members on the flourishing state of the Society in this the forty-seventh year of its existence. They were now very nearly as old as King's College, within the limits of which they might be said to be holding their meetings. The college had been just celebrating its fiftieth anniversary, and in three years from this time this Society would, he hoped, be in a condition to celebrate, with equal satisfaction, its fiftieth anniversary. There was one point mentioned in the report which was worthy, perhaps, of a moment's consideration: he meant the improved condition of the Society's rooms. It was, he believed, a great source of congratulation to all of them—certainly to himself individually—that they had succeeded in so considerably improving the rooms in which they met. Many complaints used formerly to be made of the room in which our meetings are held; but those complaints had altogether ceased, and now they had nothing but congratulations on their open and airy apartment. Some outlay, of course, had to be incurred in making this improvement, but we all felt that the improvements effected are well worth the outlay, and that if they were allowed to remain in undisturbed possession of these premises for a few years, they would be able to recoup themselves, through the additional value conferred upon them. The members of the Society were well aware that their tenure was a somewhat peculiar one. They were tenants of the Principal of King's College and not of the college itself, and so long as he (the Principal) was connected with the college, and for six months after that date they would remain in undisturbed possession. After that time the Council might again have to encounter the same difficulties which they found so serious when they recently made an attempt to secure more permanent accommodation. All those who had shared the experience he himself had had of this difficulty, must feel that it was by no means an insignificant thing to get a good place in a convenient part of London suitable for a Society like this to hold its meetings in. Something had been said of late about an attempt to move the Government in this matter; but he must confess that although he shared the feelings of those who would be very glad to accomplish this purpose without Government aid, he should look for the assistance of the Government at least in obtaining a site to build upon as a matter not altogether to be despaired of. At present they were fortunately circumstanced; for they had, as subordinate members of the Government, two past Presidents, Sir Thomas Brassey and Mr. Shaw Lefevre; while a Fellow of theirs was Under Secretary of the Home Department. If then they had occasion to bring their difficulty before the existing Government at some future time, they might hope to show that they had as fair a right to expect the Government to help them to obtain suitable accommodation as those societies that found themselves so comfortably situated in Burlington House. He thought the Society had a right to put forward a special claim on the Government in the way of house accommodation, because the work it did was a great help to the Government, and a direct saving of expenditure which they might otherwise have to incur. If any movement were made in this direction, let us hope that it would issue in a result as favourable to the public as had attended the application of King's College for the site on which the Inland Revenue now stood. The college wanted it for an hospital, and the Government, who had left the site unoccupied for I know not how many years, found all at once that they had a use for it. If the Statistical Society, and other societies with it, were to make a similar application to the Government, let us hope that it would confer on the public the same benefit, if they could not procure for themselves what they so much needed—fixity of tenure on a suitable site.

The motion having been seconded, was carried unanimously.

Mr. Robert Lawson and Mr. G. Phillips Bevan having been chosen as scrutineers of the ballot—The President announced, upon their report, that the gentlemen named in the printed list submitted to the meeting, had been unanimously elected as the President, Council, and Officers for the ensuing year.

The title of the Howard Medal Essays for 1882 was announced to be "On the State of the Prisons of England and Wales in the "Eighteenth Century, and its influence on the Severity and Spread "of Small Pox among the English population at that period. The "essays also to present a comparison of the Mortality by Small Pox "among the Prison Population of England and Wales during the "Eighteenth Century, with the Mortality from the same cause "during the last Twenty Years." It was also announced that the Council have again decided to grant the sum of 20*l.* to the writer who may gain the "Howard Medal" in 1882.

It was proposed by Mr. Rowland Hamilton, seconded by Mr. H. M. Macpherson, and unanimously carried:—That the best thanks of the meeting be given to the President, Council, and Officers for their services during the past year.

The Chairman proposed a vote of thanks to the scrutineers of the ballot, which was given unanimously.

Mr. J. O. Chadwick said that as the business for the day was now completed, he asked permission to propose a vote of thanks to Dr. Guy for the able manner in which he had presided over the meeting. In the absence of the President of the year there could be no more fitting occupant of that chair than Dr. Guy. Though with very much regret many of the Fellows had observed during the past year that the state of his health had not permitted his attendance at the Society's meetings so regularly as in days gone by, yet nobody had perceived the slightest decline in Dr. Guy's interest in the progress of the Society. The great prosperity that had attended it during recent years, the extension of its membership, and he might add without doubt, the great value of its investigations, were due in no inferior degree to the unflagging care and learned pen of Dr. Guy. He desired to call attention to an omission in the chairman's opening speech. When referring to the advantages which the Society would have in approaching the Government as applicants for privileges of location for the reason that some of its past presidents now held office in the ministry, Dr. Guy had not mentioned the name of the prime minister himself, who was one of the Society's past presidents, and although he (the speaker) would not undertake to predict how far that circumstance would improve their chances of obtaining Government aid, inasmuch as Mr. Gladstone, after being for many years a Fellow of this Society, had recently withdrawn his name from the roll, yet the fact that they counted amongst the members of the Government so large a proportion of Fellows and past presidents in a body so comparatively small, was a point of no light moment in estimating the prospects of a successful application. The number of Fellows in the Society was now 808 as against 403 ten years ago, which was a striking degree of progress in numerical strength; but he thought he might add that reference to the names would exhibit a well-sustained eminence in the Fellows who were constantly added to their number.

Mr. CORNELIUS WALFORD had much pleasure in seconding the vote of thanks to Dr. Guy, mainly for this reason, that it carried his mind back for a full quarter of a century when Dr. Guy was as active a member of the Society as he is now. It was something to see one in the chair who had performed, as a simple labour of love, so much valuable service in the interests of the Society for at least an entire generation. (Carried by acclamation.)

Dr. GUY, in returning thanks, said he was much obliged to the gentlemen who had proposed and seconded the vote of thanks. They did not exaggerate when they said that he had the interests of the Society very much at heart. He had always looked upon it from the earliest time he joined it as a most important body, which occupied in reference to social science very much the position that the Royal Society occupied in regard to physical science. The more firmly we adhered to that view of matters, the better it would be for the prosperity of the Society.

The meeting then terminated.

On the NUMBER *of* DEATHS *from* ACCIDENT, NEGLIGENCE, VIOLENCE, *and* MISADVENTURE *in the* UNITED KINGDOM *and some other* COUNTRIES.

By CORNELIUS WALFORD, F.I.A., F.S.S., F.R.HIST. SO., *Barrister-at-Law.*

[Read before the Statistical Society, 15th February, 1881.]

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THE discussion upon and subsequent passage of the Employers' Liability Act (43 and 44 Viet., cap. 42), "An Act to Extend and "Regulate the Liability of Employers to make Compensation for Per-"sonal Injuries suffered by Workmen in their Service," 1880, which came into operation on the first day of the present year, has naturally drawn attention to the question of deaths from the causes here enumerated, and equally so as to the more difficult problem of the number of non-fatal injuries so resulting. It is in accordance with the traditions of this Society, that an attempt should be made by its Fellows to throw some light upon these respective problems, so far as statistics may be able to accomplish this.

I am not aware that any attempt has yet been made to deal in a comprehensive manner with the returns of deaths from accidents, negligence, violence, and misadventure in this kingdom, or in either division thereof. And when I speak of the divisions of the kingdom in this connection, it is for the purpose of expressing my regret that we still have no compiled statistics treating the kingdom as a whole. The three divisions are kept as distinct as if they were distinct nationalities; and much inconvenience is thereby occasioned to inquirers. I can, however, only deal with the facts as I find them in this regard, and have to fall back upon the distinct sets of reports of the registrars-general of the three divisions—admirably arranged as these are, each within itself—as exponents of the occurrences within the territory it covers.

I propose also, in view of comparisons, as well as for general reference, to survey the statistics of other countries relating to deaths from the same causes, so far as the same are available. In truth, as this is the first time the subject has been dealt with before this Society, I shall seek to make the present paper as comprehensive as the time and materials at my disposal will allow.

PART I.—HISTORICAL.

But before dealing with the modern returns, which must indeed constitute the chief feature of this paper, I think it will be instructive to look at the figures furnished by the early bills of mortality, although these indeed limit us very much to the city of London; yet there is something to be learned.

The causes of death were recorded by the company of parish clerks, to whom (as the descendants of the guild or fraternity of St. Nicholas, incorporated as early as 1253 by charter 17, Henry III) the superintendence of the compilation of the bills of mortality of the city was intrusted.

The first bill wherein the causes of death were specified seems to have been issued in 1629, and the practice was continued down to 1636, when a hiatus occurs, until the year 1647, the total deaths only being given in the interval.

These early bills of mortality are in a very limited degree available for statistical purposes; but it must be admitted that they do present us with almost photographic exactitude some of the features of the period. Thus I take at random one issued in the first year of the reign of Queen Anne. One person is returned as having died "choked with fat;" 61 died of "surfeit;" 9 of "St. Anthony's "fire;" 21 were "found dead in the streets;" 90 were "overlaid;" 1 "stifled in the mud." In the following year 70 "died of surfeit," 72 were "hanged," 12 "murdered," and 69 "overlaid." The ravages of "smallpox" were cruel, and "drunkenness" claimed a very large portion of victims, but the exact proportion could not be ascertained then, nor indeed can it now! The humorists found these same bills a fruitful source of mirth. Thus Addison, in a paper designated "Dying for Love," enumerates some of the imaginary causes which worked such dire disaster:—

"T. S., wounded by Zelinda's scarlet stocking, as she was stepping out of a coach.

"Tim Tattle, killed by the tap of a fan on his left shoulder by Coquetilla, as he talked carelessly with her at a bow window.

"Samuel Felt, haberdasher, wounded in his walks to Islington by Mrs. Susannah Cross Stick as she was clambering over a style.

"John Pleadwell, Esq., of the Middle Temple, assassinated in his chambers on the 6th inst. by Kitty Sly, who pretended to come to him for advice."

A provincial bill of mortality given in the "Guardian," edited by Richard Steele, stated the causes of death in a more statistical form, viz., died—

Of a six-bar gate	4
,, quick-set hedge	2
Bewitched	13
By an evil tongue	9
Crost in love	7
Broke his neck robbing a hen roost	1
Surfeit of curds and cream	2
Took cold sleeping at church	11
Of October	1
Broke a vein bawling for a knight of the shire	1
By the parson's bull	1
Shot by mistake	1
Of a mountebank doctor	6
Old age	100

But I am anticipating dates; and besides fiction can claim but small space here. We must pass on to facts.

The following items which occur in these early bills are extracted and arranged here for reference:—

TABLE A.—*Causes of Death* (*inter alia*). (LONDON.)

Year.	Burnt and Scalded.	Drowned.	Executed.	Hanged and made away with themselves.	Killed by several Accidents.	Murdered.	Poisoned.	Starved.	Total of foregoing.
1629....	3	43	19	8	54	—	—	—	127
'30....	10	33	13	8	55	—	—	—	119
'31....	7	29	12	6	47	3	—	--	104
'32....	5	34	18	15	46	7	—	—	125
'33....	1	37	13	—	49	—	2	—	102
'34....	3	32	13	3	41	6	—	—	98
'35....	12	32	13	8	51	5	—	—	121
'36....	3	45	13	7	60	8	2	—	138
Hiatus									
1647....	3	47	8	11	27	3	—	—	99
'48....	6	40	17	10	57	2	3	4	139
'49....	10	30	29	13	39	7	—	8	136
'50....	5	27	43	14	94	5	7	7	202
'51....	11	49	24	9	47	4	—	1	145
'52....	8	50	12	14	45	3	—	2	134
'53....	5	53	19	15	57	3	—	1	153
'54....	7	30	21	9	58	3	—	1	129
'55....	10	43	19	14	52	9	—	3	150
'56....	5	49	22	16	43	6	—	1	142
'57....	7	63	20	24	52	5	—	3	174
'58....	4	60	18	18	47	7	—	6	160
'59....	6	57	7	11	55	70	—	7	213
'60....	6	48	18	36	47	20	—	14	189

The returns under the same arrangement extend no further. On the whole the fluctuations are not larger than might have been expected. The return of seventy murdered in 1659 may be an error.

The famous Captain John Graunt, F.R.S., passed the figures here given, or the greater part of them, carefully under review, and his "Observations" contain the following sagacious remark thereon: "We shall say nothing of the number of those that have been "drowned, killed by falls from scaffolds, or by carts running over "them, &c., because the same *depends upon the casual trade and* "*employment of men, and upon matters which are but circumstanced* "*to the seasons and regions we live in, and affords little of that science* "*and certainty we aim at.*"

His reasoning that the deaths of this class vary with the occupations of men was true enough, but his conclusion that therefore no correct average could be obtained we shall hereafter see is erroneous.

A special bill issued in 1665, the plague year, wherein the deaths were in total 97,306, "whereof of the plague 68,596," leaving 28,710 as resulting from other causes, amongst which were the following:—

Kil'd by several accidents	46	Murthered and shot	9
Drowned	50	Poysoned	1
Hang'd and made away with themselves	7		
Burnt and scalded	8	Total from these causes	121

These being about 1 in 237 of the whole of the deaths returned.

From a table prepared by Mr. Corbyn Morris, of deaths in the "City and Suburbs," during the period 1675 to 1757, embracing thus eighty-three years, the following facts are drawn.

The deaths of the classes under notice in this paper were there classed as follows, being not dissimilar to the modern classification of the registrar-general, thus:—

"Casualties, bruised, burnt, drowned, executed, frighted, falls, "and other accidents, self-murder [suicide], murdered, overlaid, "poisoned, scalded, shot, strangled, smothered, starved, and "suffocated."

These are all "lumped" together, and constitute one item in the table. We give the figures in Col. 3 of the following table:—

TABLE B.—*Deaths in City and Suburbs of London during the following Years, specifying Proportion resulting from Casualties.*

Year.	Total Deaths.	Deaths from Violence as above Enumerated.	Being in the Proportion of 1 in
1675....	17,244	290	59
'76....	18,732	325	57
'77....	19,067	324	58
'78....	20,678	323	64
'79....	21,730	318	68
1680....	21,053	311	67
'81...	23,971	358	66
'82....	20,691	332	62
'83....	20,587	346	59
'84....	23,202	327	70
'85...	23,222	350	66
'86....	22,609	334	67
'87...	21,460	310	69
'88....	22,921	362	63
'89....	23,502	357	65
1690....	21,461	374	57
'91...	22,691	322	70
'92....	20,874	297	70
'93....	20,959	344	60
'94....	24,100	305	79
'95....	19,047	284	67
'96...	18,638	274	68
'97....	20,970	273	76
'98 ..	20,183	Causes of death not registered	—
'99....	20,795		—
1700....	19,443		—
'01....	20,471	337	60
'02 ..	19,481	272	71
'03...	20,720	274	75
'04....	22,684	278	81
'05...	22,097	257	85
'06....	19,847	249	79
'07....	21,600	275	78
'08...	21,291	277	76
'09 ..	21,800	251	86
1710....	24,620	228	107
'11....	19,833	226	87
'12....	21,198	206	102
'13 .	21,057	238	88
'14....	26,596	282	94
'15...	22,232	275	80
'16...	24,436	285	85
1717	23,446	320	73
'18	26,523	340	78
'19	28,347	331	85
1720	25,454	309	82
'21 ...	26,142	365	71
'22 ...	25,750	299	86
'23 ...	29,195	338	86
'24	25,952	349	74
'25 ...	25,525	366	69
'26 ...	29,647	376	78
'27 ...	28,418	375	75
'28 ...	27,810	397	70
'29 ...	29,722	405	73
1730 ...	26,761	407	65
'31 ...	25,262	449	56
'32 ...	23,358	466	50
'33 ...	29,233	459	63
'34 ...	26,062	443	58
'35 ...	23,538	445	52
'36	27,581	455	60
'37 ...	27,823	373	74
'38	25,825	367	70
'39	25,432	445	57
1740	30,811	462	66
'41	32,169	466	69
'42	27,483	426	64
'43	25,200	404	62
'44 ...	20,606	395	52
'45 ...	21,296	429	51
'46 ...	28,157	384	73
'47	25,494	375	67
'48 ...	23,869	371	64
'49 ...	25,516	408	62
1750 ...	23,727	363	65
'51 ...	21,028	294	71
'52 ...	20,485	316	64
'53	19,276	331	58
'54	22,696	298	76
'55 ...	21,917	391	56
'56	20,872	329	63
'57 ...	21,313	318	67

I think on the whole that the steadiness shown in the results of this table is quite remarkable. There are, indeed, occasional jumps and depressions, the cause of which cannot be now unravelled; but we are to look upon it as a whole.

A perusal of this and the preceding tabular abstracts of the old bills of mortality, carries the mind back to the dangers of the streets of the metropolis in the seventeenth and eighteenth centuries, so vividly pourtrayed by Gay in his "Trivia:"—

> "Where a dim gleam the paly lanthorn throws
> O'er the said pavement, heapy rubbish grows;
> Or arched vaults their gaping jaws extend,
> Or the dark caves to common shores descend;
> Oft by the winds extinct the signal lies,
> Or smother'd in the glimmering socket dies,
> Ere night has half roll'd round her ebon throne;
> In the wide gulph the shatter'd coach o'erthrown."

or again:—

> "Entangled here the waggon's lengthen'd team
> Cracks the tough harness; here a ponderous beam
> Lies overturn'd athwart; for slaughter fed
> Here lowing bullocks raise their horned head.
> Now oaths grow loud, with coaches coaches jar,
> And the smart blow provokes the sturdy war."

and Dr. Johnson, a great observer of the London streets, at a later period wrote:—

> "For who would leave unbrib'd Hibernia's land,
> Or change the rocks of Scotland for the *Strand?*
> There some are swept by sudden fate away,
> But all whom hunger spares, with age decay.
> *Here* malice, rapine, accident conspire,
> And now a rabble rages, now a fire;
> Their ambush here relentless ruffians lay,
> And here the fell attorney prowls for prey;
> Here falling houses thunder on your head,
> And here a female atheist talks you dead."

The early dramatists are full of such allusions to the dangers of the town.

Dr. Farr made an abstract of the results to be deduced from the London bills of mortality, following them down to 1829, of which Table C contains the details, including some figures from the registrar-general's returns next to be spoken of:—

TABLE C.—*Violent Deaths in the London Bills of Mortality, at different periods from 17th to 19th Centuries.*

Years.	Drowned.	Burnt and Scalded.	Suicide.	Killed.	Murdered.	Poisoned.	Smothered and Suffocated.	Executed.	Total.	Found Dead.	Total, including Found Dead.	Total Deaths.
1647 to 1700....	3,448	419	901	3,520	683	96	108	1,013	10,218	478	10,696	1,054,201
1701 „ '49....	3,943	384	1,978	3,120	419	115	151	681	10,791	1,770	12,561	1,223,343
'50 „ '99....	5,679	744	1,571	3,546	218	76	288	935	13,057	510	13,567	1,013,759
1800 „ 1829....	3,635	1,150	1,090	2,632	99	109	216	595	9,526	406	9,932	586,322
'37½ „ '39....	—	—	—	—	—	—	—	—	3,119	—	—	123,098
	Proportion of Deaths by Violence in 10,000 Deaths from all Causes.											
1647 to 1700....	32·7	4·0	8·5	33·4	6·5	0·9	1·0	9·9	96·9	4·5	101·4	10,000
1701 „ '49....	32·3	3·1	16·2	25·5	3·4	0·9	1·2	5·6	88·2	14·5	102·7	10,000
'50 „ '99....	54·4	7·1	15·0	31·0	2·1	0·7	2·8	9·0	125·1	4·9	130·0	10,000
1800 „ 1829....	62·0	19·6	18·6	44·9	1·7	1·9	3·7	10·1	162·5	6·9	169·4	10,000
'37½ „ '39....	—	—	—	—	—	—	—	—	253·4	—	—	10,000

The results to be read from this table are these:—In the first period (1647-1700) the annual rate of mortality was about 7, in the second 5·2, in the third 5, and in the fourth 3 per cent.; whence it may be deduced that in the seventeenth century 6·8 (nearly 7) in 100,000, in the eighteenth century 5·4, and in the nineteenth century 5, died violent deaths. Out of a given amount of population the deaths by drowning increased in the latter half of the eighteenth century; the deaths by scalds and burns were twice as great in 1800-30 as in the seventeenth century. The tendency to suicide remained nearly stationary, so did death by poisoning. All the deaths by personal violence rapidly decreased.

In the seventeenth century therefore, in a population of 100,000, about 23 were killed by injuries of various kinds, and 4·6 were murdered; in the nineteenth century about 13 were "killed," and 0·5 were murdered. The chance of being murdered diminished ninefold. The executions were more frequent in the latter half than in the beginning of the eighteenth century, compared with the population within the bills of mortality; they were not, however, half so frequent in the first thirty years of the nineteenth century as in the latter half of the eighteenth century, when about 7 were executed annually to a population of 10,000. Relatively to the murders, the number of executions increased.

I must leave this part, instructive as it is, and turn to the present period.

PART II.—STATISTICAL.

All modern statistics date from the coming into operation of the machinery of the Registration Acts, applicable to deaths in three divisions of the kingdom respectively. That for England and Wales was enacted in 1836; for Scotland in 1854, and for Ireland in 1863.

The returns available under these Acts are so much in advance of anything previously existing, that they in fact constitute a new era—the practical compared with the problematical or simply historical.

I propose to investigate the returns of each division of the kingdom separately, no other plan being deemed really practicable.

1. **England and Wales.** The registration of deaths and their causes, under a scientific arrangement, came into operation for this division of the kingdom in 1837, but no return under the head "violent deaths," which includes all the designations we here adopt, was actually compiled earlier than for the year 1838. From thence down to 1842 they were given with regularity; then came a hiatus of four years, 1843-46, but the returns were resumed in 1848, and have since remained continuous.

The following table gives the totals of such deaths for each year embraced in the returns, distinguishing the number of males from females :—

TABLE D.—*Deaths by Violence (including Accident, Negligence, and Misadventure) in England and Wales, distinguishing Males and Females; also Total Deaths (both Sexes), showing Ratio of Deaths from Violence.*

Year.	Violent Deaths.			Deaths, all Causes.	Violent Deaths to General Mortality, One in
	Males.	Females.	Totals.		
1838	8,359	3,368	11,727	342,762	29
'39	—	—	11,980	338,984	28
1840	—	—	11,922	359,687	30
'41	—	—	11,468	343,847	29
'42	—	—	11,338	349,519	30
'43	—	—	—	346,413	—
'44	—	—	—	356,933	—
'45	—	—	—	349,366	—
'46	—	—	—	390,315	—
'47	—	—	13,720	420,977	30
'48	9,785	3,768	13,553	398,533	29
'49	9,624	3,709	13,333	440,839	33
1850	9,984	4,000	13,987	368,602	26
'51	9,723	3,836	13,559	392,369	28
'52	10,458	4,017	14,475	407,135	28
'53	10,725	4,087	14,812	421,097	28
'54	10,990	4,197	15,187	437,905	28
'55	10,951	4,341	15,292	425,703	27
'56	10,885	4,027	14,912	390,506	26
'57	11,048	3,979	14,027	419,815	29
'58	10,327	3,824	14,151	449,656	31
'59	10,785	3,464	14,249	440,781	30
1860	10,666	4,108	14,774	422,721	28
'61	11,143	3,842	14,985	435,114	29
'62	10,994	3,950	14,944	436,566	29
'63	11,635	4,045	15,680	473,837	30
'64	12,576	4,442	17,018	495,531	29
'65	13,105	4,269	17,374	490,909	28
'66	12,735	4,180	16,915	500,689	29
'67	12,657	4,209	16,866	471,075	27
'68	12,833	4,135	16,968	480,622	28
'69	12,419	4,078	16,497	494,828	29
1870	12,339	4,254	16,593	515,329	31
'71	12,678	4,315	16,993	514,879	30
'72	13,045	4,212	17,257	492,265	28
'73	12,900	4,346	17,246	492,520	28
'74	13,414	4,506	17,920	526,632	29
'75	13,925	4,964	18,889	546,453	28
'76	13,691	4,688	18,379	500,315	27
'77	13,144	4,540	17,684	500,496	28
'78	13,666	5,181	18,847	539,872	28
'79	12,866	4,769	17,635	—	—

Note.—The figures in the early portion of this table underwent some slight adjustment afterwards.

Commentary on Table D.

These results present a wonderful uniformity, and indeed establish the fact that the law of average obtains as fully in this class of deaths as in those resulting from what are usually termed natural causes. It will be observed, however, that the increase has been far more progressive with males than with females, as indeed was to be expected from the nature of the occupations of the former.

But in order to arrive at the true value and force of the figures now furnished, a critical examination of the results is required, and this I now proceed to make in chronological order.

At the census of 1831 the total population was returned at 13,897,187. Of this population there were 834,543 families engaged chiefly in agriculture; 1,227,614 engaged chiefly in trade, manufactures, and handicraft; and 849,717 families engaged in other pursuits or living on their means. This gave a total of 2,911,874 families, the heads of which might be regarded as the persons more liable than others to the chances of death by accident, negligence, violence, or misadventure.

1833. Children under 9 years of age were prohibited from working in factories.

1838. The deaths placed under this year were really those occurring between 1st July, 1837, and 30th June, 1838, both inclusive. This arrangement continued down to 1840. The first clear period of a year (January to December) embraced in my report was in the fifth, containing abstracts for 1841. The registrar-general remarked upon his first summary of the deaths of this class relating to this year (Second Report, p. 77): "The "violent deaths are exceedingly numerous, and will perhaps lead to "a general inquiry into their causes—drowning, fires, accidents "with machinery, the bursting of steam boilers, explosions in mines, "and poisons which can be procured, of the most destructive and "subtle nature, with extraordinary facility. *In a political point of "view violent deaths are of great importance, as they bear upon the "efficient part of the population.*"

The mortality from violent deaths throughout England and Wales was 1·064; or in other words 106·4 in 100.000 males (living) died a violent death. In the northern counties it was found that 16 in 10,000 males died violent deaths annually; in Staffordshire, and Warwickshire, and some other midland counties the deaths were 14; in Lancashire and Cheshire 13; in Cornwall and other south-western counties 11; in the metropolis 8; in Essex, Suffolk, and Norfolk 7. The deaths of females by violence were most numerous in Cheshire, Lancashire, Yorkshire, and some other counties where they were employed in factories, and sustained injury by machinery.

In Kent and other south-eastern counties, 3 females in 10,000 died violent deaths; in Lancashire and Cheshire 5 in 10,000 annually.

The mortality of *males* from violent deaths was to that of *females* as 26 to 10. It was found that two-thirds of males killed by violence were aged 20 and upwards, while less than half of the females were of that age. But the same data also showed that many more accidents happened when the men were young and inexperienced than in maturer life. The violent deaths of men with occupations above ground were very generally from the effects of falls, to which masons, plasterers, slaters, painters, and glaziers were found peculiarly liable.

Speaking generally, it was found that violent deaths were least common in the agricultural districts, more frequent in cities and manufacturing towns, and most fatal in mining districts, but even here more fatal in the midland districts than in the northern counties.

The interesting point of "Locality" is further illustrated by the following table:—

TABLE E.—*Number of Violent Deaths out of One Hundred Thousand Persons by Various Causes in the Metropolis; in Manchester, Liverpool, and Birmingham; in Norfolk and Suffolk, and in the Mining Districts.*

Causes of Death.		Metropolis (Two Years).	Norfolk and Suffolk.	Manchester, Liverpool, and Birmingham.	Mining Districts.
Mechanical injury	Gunshot wounds	0·7	1·0	0·7	1·0
	Other ,,	2·6	1·5	2·4	1·0
	Fractures and contusions	21·6	20·6	35·0	53·2
Chemical injury	Explosions, scalds, burns, lightning	14·6	20·7	28·3	38·8
	Poisons	3·3	2·2	4·0	1·8
Suspension of respiration (asphyxia)	Drowning	16·4	19·4	17·5	21·9
	Hanging	4·7	6·5	4·0	1·4
	Mephitic gases	0·2	—	—	0·9
	Suffocation	2·7	2·9	3·3	0·6
Total		66·8	74·8	95·2	120·6

1839. The violent deaths were found to range from 50·9 to 101·5 per 100,000 of the population—that is the highest in the mining and manufacturing, the lowest in the agricultural districts; the metropolis occupying a mean position between the two; average over the whole 79·2. The actual proportion in the different districts will be valuable for future reference.

TABLE F.—*Annual Rate of Violent Deaths per One Hundred Thousand of the Population,—Exclusive of Suicides.*

Districts.	Males.		Females.		Mean of the Two Years.		
	1838.	1839.	1838.	1839.	Males.	Females.	Both Sexes.
Northern counties	165·8	163·9	42·5	33·9	164·8	38·2	101·5
Western ,,	134·6	143·2	48·5	50·5	138·9	49·5	94·2
North-Western counties	137·0	130·2	52·5	53·7	133·6	53·1	93·3
Monmouth and Wales	114·0	129·2	36·0	38·3	121·6	37·1	79·3
South-Western counties	115·3	104·4	40·5	37·5	109·8	39·0	74·4
North Midland ,,	95·9	107·8	39·6	39·3	101·8	39·5	70·7
Yorkshire	92·7	88·2	43·9	41·2	90·5	42·5	66·5
Metropolis	85·3	78·7	38·7	37·3	82·0	38·0	60·0
South Midland counties	76·7	78·0	36·5	32·0	77·3	34·3	55·8
South-Eastern ,,	87·9	73·1	33·6	27·0	80·5	30·3	55·4
Eastern counties	71·6	76·0	27·4	28·9	73·8	28·1	50·9
England and Wales	106·4	105·3	41·1	39·4	105·8	40·2	73·0

The mortality of males from violent deaths was thus seen to be as 105 to 40 of females.

Attention was drawn to the fact that many accidents happened from ignorance and carelessness; that fewer accidents occurred in one factory than in another; that men were crushed, burnt or blown to pieces much less frequently in the coal mines of certain proprietors than in those of others. Hence human agency might be employed in mitigation of violent deaths. "The knowledge of "the accidents to which people are exposed in different occupations "may put them more on their guard against danger."—Third Report, Registrar-General, p. 88.

An analysis of the violent deaths in three other European countries compared with England and Wales, was given in the third report of the registrar-general, and will be given in our statistics relating to "foreign countries."

1840. An analysis of the deaths by accidental violence this year furnished the following details:—Out of 7,152 males 3,268 were under 20, and 3,884 above. Out of 2,828 females 1,996 were under 20, and 832 above. Lancashire and Cheshire presented the highest totals for both males and females. In those counties united the death-rate from this cause was, for males 1,098, for females 459 to 1 million living. In London alone no less than 1,016 persons were killed that year, of whom 711 were males, and 305 females. The deaths from accidents were, therefore, for males 82·1, and females 31·0 to 100,000 living. The causes of death were thus classified: mechanical injuries 3,305, chemical injuries 3,245, drowning, &c., 2,297.

The registrar-general in his sixth report (1842), thus drew attention to this subject:—

> "The violent deaths in England appear to be nearly twice as frequent as in other countries of Europe from which returns have been procured. . . . The coroners' informations, although not made at present on a uniform plan, furnish many valuable facts, and when compared with the occupations and other circumstances recorded in the registers, or ascertained at the census, become doubly interesting . . . it is very desirable that in all cases in which inquests are held, the coroner should instruct the juries to state in their verdicts with greater minuteness than at present the cause of death; recording more in detail the nature of the injury, and the circumstances in which the death happened."

It was still apparent that the modern classification of these deaths was not yet settled.

1841. The population of England and Wales as shown by the census of this year was 15,911,757—males 7,775,224, females 8,136,533.

1844. The "Factory Act" of this year provided for the fencing in and guarding of machinery where children and women were employed (see 1856).

1850. Dr. Farr commenced his useful annual review in the reports of the registrar-general of the "Causes of Death" (*vide* Thirteenth Annual Report, part ii, p. 136); and in the same for this year he indicates that some changes had been introduced in the classification of violent deaths. This may account for the sudden jump up in the number of such deaths this year; but they recede again speedily.

A few of the causes contributing to the total are indicated: cold 102; burns and scalds 2,782; poisons 455; drowning 2,532; suffocation by other means 1,173; mechanical injuries caused 4,824 deaths, viz., 4,233 by fractures and contusions, and 591 by wounds. There were 1,225 cases of death by violence where the causes were not returned. There were 323 deaths registered as consequent upon intemperance.

1851. The population of England and Wales, as shown by the census of this year, was 17,927,609—males 10,223,558, females 9,146,384. Nearly 80 in every 100,000 of the population died by violent deaths this year.

1852. The deaths from violence again increased this year considerably, and amounted to 3·6 per cent. (or 36 per 1,000) of the deaths of the year. Thus 80 in 100,000 of the population were killed by some form of violence.

An intimation was given in the fifteenth report of the registrar-general, that tables were being prepared "which will show the "peculiar diseases, and the dangers of each sex at several periods "of age."

1854. The deaths by *fractures* and *contusions* had been increasing rapidly, viz., from 4,228 in 1848 to 5,777 in 1854, and if deaths from "other violence" be added, the increase had been from 5.254 to 6.274. On the other hand the deaths from *poison* which had ranged from 444 to 467 in the four years 1848-51, had become reduced during the three following years to 370, 409, and 398 respectively; this was believed to be consequent upon legislation regarding the sale of poisons.

The deaths from fractures in England and Wales during the seven years 1848-54 had reached the enormous total of 33.239, taking rank as No. 21 in a table of the causes of death arranged in the order of their mortality.

1856. In the nineteenth report of the registrar-general, containing abstracts for this year, there is a most careful analysis of violent deaths for the five years 1852-56. The total deaths of this class in that period were 68,554, viz., 50,287 males and 18,267 females, that is in the proportion of three males to one female. Their causes were now classed into six groups, viz.:—1, connected with *railways;* 2, mines (in two divisions, coal and metals); 3, mechanical injuries; 4, chemical injuries; 5, asphyxia (suspension of respiration); 6, violence (not defined). The most numerous class was No. 3, but very little below came No. 4, while No. 5 was very large.

The arrangement admitted of many details in the way of subclasses, and is still continued. Particular attention will be drawn to it in a later division of this paper.

The number of deaths from *mechanical violence*, which had been for some years increasing, now showed signs of a gradual decline, and continued in this favourable condition, 1867 and 1876 showing periods of reaction.

In Dr. Farr's letter to the registrar-general in the same report, the following details are given regarding the year 1856. The mortality from violent causes was nearly 80 in 100.000 living, and nearly 4 in 100 deaths were by violence; 2,919 deaths were from burns and scalds; 2,681 were from drowning; *and the deaths at sea were not included in the registers.* 5,433 deaths were from fractures and contusions. He says, in his commentary upon coroners' returns:—"The progress of science has created new forces, often fatal, and "has produced new substances, of which our forefathers had no "knowledge. Machinery is organised on a large scale, so that the "lives of numbers of men are liable to be destroyed, not by mali-"cious intent, but by the negligence of other men who have their "lives in charge;" and adds, "1,107 persons are killed annually by "horses and horse conveyances;"—more than double the number killed by railways.

The deaths from *drowning* constitute an important class. They numbered 11,758 in the five years 1852-56, but the details concerning the mode are very obscure. 588 were drowned while bathing; 215 by falling from ships and boats; 265 by shipwreck; 4 while sliding and skating; and the great bulk are unaccounted for. We shall recur to these deaths at a later portion of this paper.

In *mines*, during the five years 1852-56, the total deaths had been 5,683, males 5,629, females 54;—average annual deaths 1,136; 985 in coal mines and 151 in metal mines. The causes most generally associated in the popular view with mining accidents are explosions of fire damp; but accurate registration shows that the deaths from this cause are on the annual average but 198 to 939 from other causes. The fall of coal, stone, and other substances kills 509 men and women annually, including the crushed; 157 fall into the pits and shafts. This branch of the inquiry is specially followed up in a later section of this paper.

The deaths from *railway accidents* were showing signs of considerable increase, as was indeed to be expected, owing to the rapid extension of railway travelling. The numbers rose from 391 in 1852 to 548 in 1856. The registrar-general's returns only extended to England and Wales here as in other cases; but in this instance we have access to the Board of Trade returns, the totals of which however differ very materially from the registrar-general's returns, and can therefore give those for the other divisions of the kingdom, as far as they go.

TABLE G.—*Deaths from Railway Accidents from* 1852 *to* 1856, *both inclusive, as Reported to the Board of Trade.*

Years.	England and Wales.	Scotland.	Ireland.	Total.
1852	181	24	11	216
'53	243	36	26	305
'54	180	29	14	223
'55	214	14	18	246
'56	232	30	19	281

The explanation of the discrepancies between the Board of Trade returns and those of the registrar-general as to numbers, may be gathered from a report by Captain Galton, R.E.:—

"I believe railway companies return to us *all* the fatal accidents "to passengers, except perhaps occasionally when death ensues a "long time after the accident, but probably *not more than one-"half of the fatal* accidents to their own servants are returned; "and I believe that many cases of fatal accidents to trespassers "are not returned. We endeavour to get as complete returns as "we can, but the law only requires returns of accidents to pas-"sengers."

In further explanation of these discrepancies and their causes, the following abstracts are given :—

The Causes of Death in the Registrar-General's Returns of the 548 *Persons Killed by "Accidents in Connection with Railways" in* 1856.

Run over on line	306
Fall from carriage or engine	22
Collisions	11
Carriages off rails, &c.	7
Explosion of boilers	7
Killed between buffers	8
Fall of earth	3
Other deaths (manner not stated)	184
Total	548

Similar Accidents attended with Death, Reported to the Board of Trade as having occurred in 1856 *in England and Wales.*

Run over on line	137
Fall from carriage or engine	35
Collisions	14
Carriages off rails, &c.	10
Explosion of boilers	1
Killed between buffers	23
Fall of earth	Nil
Other deaths	12
Total	232

There was a further amendment of the Factory Acts this year (see 1844 and 1867).

1857. The execution of Palmer for the Rugeley Life Insurance murders, drew attention to the great number of deaths resulting from *poisoning*, which were of course included under the class violent. The multiplication of poisonous substances has followed upon improved chemical knowledge, and many of these, from the subtle nature of their effects, have been found well, too well, adapted to the murderous art—as witness the Wainwright ("Janus "Weathercock," of the "London Magazine") poisoning of his wife and her sister, the beautiful Helen Abercrombie (life insurance again) in the first half of the present century. Poisons are in truth the most insidious instruments the assassin can employ. The deaths registered from poisons this year were 428; but there is so often an extreme difficulty of proof, that they are and have always been probably more than can be actually discovered (see 1868).

1858. Of the number of deaths from violence returned in the table for this year (14,151), no less than 12,523 were regarded as resulting from accident—that is, the suicides, homicides, and murders were excluded. Of these deaths by accident there were 5,159 from fractures and contusions, 3,125 from burns and scalds, 2,124 from drowning, 903 from suffocation, 282 from poison, 136 from gunshot wounds, 80 from wounds by sharp instruments, and 714 were apparently accidental, but by ways or with weapons not defined. The deaths from accident were about eight times those produced wilfully.

The county of Lancashire yielded 2,036: London, with a greater population, returned 1,937. The ratio of violent deaths in Liverpool was remarkably high. It was also high in Monmouthshire, for with a population equal to that of Dorsetshire, there were 269 deaths in the former, and only 119 in the latter. South Wales altogether gave a high ratio, it returned 594 deaths from accident; Northumberland only 255. Taking equal parts of the population, there were in the latter only 84 as against 97 in the former.

1859. This year attention was drawn to deaths by *lightning.* The recorded deaths from this cause had been 18 in 1857; in 1858 they were 26, and this year they were 17. These nearly all occurred to persons following out-door occupations. Of the entire number 52 were males, 9 females; 54 were of the age of 15 and upwards, one a female child under 5. The attention of coroners to the importance of making careful returns in such cases was invoked. There is a tradition that deaths from lightning never occur on chalk soils. Mr. Alfred Haviland has this point under investigation.

1860. Dr. Farr, F.R.S., in his letter to the registrar-general on the causes of death for this year, said: "Probably more than half "the violent deaths of both sexes may be prevented by care and "vigilance on their own part, *and on the part of their employers.*" He also pointed out that the deaths from murders and manslaughters were imperfectly returned. "Suicide is most frequently "committed by hanging, but many of the suicides by drowning are "undoubtedly classed under accidental death from want of infor-"mation." The *suicides* ascertained were 7 in 100,000 of the population—1 in 14,286.

In the "Assurance Magazine" (vol. ix, pp. 20 and 156) at this date will be found a paper by Mr. H. W. Porter, B.A., containing considerations as to how far the mortality exhibited by the reports of the registrar-general is controllable by human agency.

1861. The population of England and Wales as determined by the census of this year was 20,066,224—males 9,776,259, females 10,289,965.

The report of the registrar-general for this year contains the following startling statement:—"39,927 persons were burnt alive "in England, or were scalded to death, in the fourteen years "1848-61." The following table shows the ages whereat these forms of death most frequently arise:—

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TABLE II.—*Mortality in England and Wales from Burns and Scalds, in the Fourteen Years* 1848-61.

Ages.	Deaths in the Fourteen Years.		Average Annual Deaths.		Average Annual Rate of Mortality to 100,000 Living.	
	Males.	Females.	Males.	Females.	Males.	Females.
All ages	19,736	20,191	1,409	1,443	1·60	1·57
Under 5 years	10,800	8,996	771	643	6·53	5·47
5 years	2,958	4,982	211	356	2·00	3·41
10 „	792	1,273	57	91	0·59	0·96
15 „	777	582	56	42	0·63	0·46
20 „	731	328	52	23	0·66	0·27
25 „	1,240	474	89	34	0·67	0·24
35 „	839	419	60	30	0·59	0·28
45 „	580	490	41	35	0·56	0·45
55 „	401	525	29	37	0·60	0·70
65 „	282	796	20	57	0·75	1·83
75 „	271	972	19	69	1·96	5·58
85 „	61	329	4	24	3·14	12·63
95 „ and upwards	4	25	—	2	—	19·72

Note.—The ratios in the two last columns being based upon the population of 1851, give the mortality slightly too high.

1862. The returns for this year show a further decrease in the deaths from *poisoning.* In the eight years 1850-57 they had varied from 2·1 to 2·6 per 100,000 of the population; they had fallen to 1·5, 1·4, 1·2, 1·3, and 1·3 in the five years 1858-62. This was, as already intimated, due to the increased care of chemists and druggists consequent upon legislation. "No precautions against these deaths "are too great; they diminish the fatality of accidents, and make "suicide and murder difficult by poisons."—(*Dr. Farr.*)

1863. Attention was drawn to the numbers of murders, homicides, infanticides, suicides, and executions at this date; not so much on account of any great increase in their proportions, but rather as a proper subject for statistical inquiry in relation to violent deaths.

Of the 258 *murders* of the year, 81 were infanticides—34 boys and 47 girls, including infants. Exclusive of infanticides, 177 persons were murdered—103 males, 74 females; 176 of these, however, were children under 1 year of age, leaving 47 males and 35 females at various ages, of which 14 males were from 35 to 45, and 12 females from 45 to 55 years of age.

Of the 141 *homicides* (returned by coroners' juries as manslaughter) 100 were of males and 41 of females at various ages; 33 males and 11 females being between 35 and 45 years of age. The homicides fluctuate from year to year. Since 1858 they had ranged from 1·6 to 2·1 in 100,000 of the population annually.

The *infanticides* were included in the returns of murders and homicides, all being in the tabular returns designated homicides. These have increased during the last two and present years. In the three years 1858-60 the reported annual deaths by homicide and infanticide were 353; in the three years 1861-63 they were 379, showing an average increase of 26.

The *executions* had also increased. They averaged 9 per annum in the three years 1858-60, and 16 in the three years 1861-63. During this year 20 men were executed—6 of the age of 15—25; 10 of 25—35; 1 of 35—45; 2 of 45—55; and 1 of 65—75. But 1 woman, age 25—35, was executed. The returned homicides (by coroners' inquests) in the six years 1858-63 were to the executions as 2,196 to 75, or as 29 to 1.

The *suicides* of the year (so returned) were 1,319; the proportion to the population being 6·6 in 100,000, homicides being 20, and executions 1. The proportion of suicides to 100,000 of the population on an average of the six years 1858-63 was 6·7, and the successive numbers for those years run 6·6, 6·4, 7·0, 6·8, 6·5, and 6·6. The most common way of committing suicide is shown in the following table:—

TABLE I.—*Suicides to every One Hundred Thousand of the Population in England and Wales,* 1858-63.

Means Employed.	1858.	1859.	1860.	1861.	1862.	1863.
Hanging	3·0	2·7	3·0	3·0	3·0	2·8
Cutting, stabbing	1·3	1·4	1·4	1·3	1·1	1·3
Drowning	1·0	1·1	1·1	1·1	1·0	1·2
Poisoning	0·6	0·6	0·8	0·6	0·6	0·6
Gunshot wounds	0·3	0·3	0·3	0·3	0·3	0·3
Otherwise	0·4	0·3	0·4	0·5	0·5	0·4
All ways	6·6	6·4	7·0	6·8	6·5	6·6

The regularity here shown is little short of surprising; but the subject is too large to be followed up now. It will some day command a paper exclusively.

The deaths of each class here spoken of, and of nearly all classes constituting violent deaths, form the subject of inquiry before coroners' courts. The reform of the coroner's court is a subject demanding further consideration than it has yet received. The number of inquests held in 1863 was 20,591. The juries in 2,429 instances returned verdicts of "found dead," and in 7,118 instances "natural death" as the result of their investigations. The coroners at present are composed in large proportions of lawyers and doctors. Under more enlightened government the office will probably be deemed purely a legal one; but a proper certification of the cause of death by a medical practitioner attending the coroner's court should be part of the process. In too many instances the present finding of a coroner's jury is a farce, and in other cases absolutely misleading.

1864. In the fifteen years 1850-64 the deaths by violence of every kind, including accidents, negligence, suicide, and murder, were in the proportion of 75·3 to 100,000 of the population, that is rather more than 7 to 10,000 living. The proportion in the three periods of five years were 74·6, 74·2, and 77·0 in 100,000. The increase began in 1863, when the proportions rose to 77·2, and in the three following years to 82·6, 83·5, and 80·7.

1865. The violent deaths had increased from 14,151 in 1858 to 17,374 in 1865. The deaths to 100,000 of the population were 73·4 in 1858, and were now 83·5; while the population had been increasing, the violent deaths had increased in a more rapid ratio. The increase was almost wholly due to accidental causes, chiefly to mechanical forces. The danger of London streets demanded attention. "Children, women, old people, and even vigorous men "are killed weekly by horses and carriages of various kinds."

1866. The following passage from Dr. Farr's letter to the registrar-general on the causes of death this year, deserved and received marked attention:—

"It is well worthy of note that although deaths by accident "attract adequate attention when many persons are killed at the "same time by great explosions in coal mines, or formidable "collisions on railways, *the causes of the greatest number of deaths* "*escape public notice.* Thus if explosions are dangerous in mines, "the fall of stone and of other materials which knock men on the "head one by one at intervals, are much more fatal. *So street* "*accidents by horse carriages kill more people in a year than* "*railways.*"

The experience of *Accident Insurance* Companies has long confirmed this fact.

There were twenty deaths from lightning this year.

1867. The registrar-general's report for this year contained in elaborate detail returns of violent deaths during the five years 1863-67. The results here given will be submitted to analysis in a later portion of this paper.

There had been a decided increase in the deaths by violence during the decennium. In 1847 there were 7 deaths in 10,000 of the population; there were now 8. The deaths by violence to 100,000 of the population had ranged from 71·6 to 76·0 in the four years 1851-54, and from 79·5 to 83·5 in the four years 1864-67. There was no increase of deaths from murder and manslaughter in the ten years 1858-67, nor in suicide. The increase was in the deaths attributed to accident or negligence.

The 15,147 deaths of the latter character were thus divided: males, 11,446; females, 3,701. Of the males, 791 met with their deaths under 1 year of age, and 2,069 under 5; 753 between 5 and 10; 870 between 10 and 15; 946 between 15 and 20; 949 between 20 and 25; 1,501 between 25 and 35; 1,347 between 35 and 45; 1,083 between 45 and 55; 858 between 55 and 65; 569 between 65 and 75; 231 between 75 and 85; 47 between 85 and 95, and 1 above 95. Of the females, 715 met with their deaths under 1 year, and 1,566 under 5 years; 372 between 5 and 10; 153 between 10 and 15; 118 between 15 and 20; 84 between 20 and 25; 140 between 25 and 35; 154 between 35 and 45; 190 between 45 and 55; 198 between 55 and 65; 259 between 65 and 75; 288 between 75 and 85; 98 between 85 and 95, and 4 over 95.

Dr. Farr, reviewing the causes of violent deaths this year, said (thirtieth report, p. 225):—

"It is only correct to say that deaths by violence are more "frequent in civilised than in barbarous communities, when we "leave out of sight the slaughters of war and the perils of starva- "tion. But as the progress of civilisation depends very much "upon the free application and employment of the vast forces of "nature in the intercourse and arts of life, it is found practically "in this country that deaths by violence are rapidly increasing in "England. Special precautions are demanded."

The Factory Acts were amended and their scope much extended this year.

1868. An Act to regulate the sale of *poisons* was enacted this year.

1870. The "Elementary Education Act" was passed this year, and under it all children between 5 and 13 years of age were required to attend school. Burns and scalds, which had decreased from 3,166 in 1860 to 2,545 in 1869, showed a further decrease this year. For the years 1860-64 they were at the rate of 14·7 per 100,000 of the population. They were for the years 1865-69 but 122, and were for the present year reduced to 116. Homicide was decreasing.

1871. The population of England and Wales, as determined by the census of this year, was found to be 22,712,266—males 11,058,934, females 11,653,332.

1872. It became more apparent that the deaths by violence bear a certain proportion to the quantity of mechanical force in use.

As to the deaths from *drowning*, it was pointed out that there were 2,297 among merchant seamen (as drawn from maritime registry), and 67 in the royal navy, not included in the returns.

The mortality from accident and negligence was 6·62 to 10,000 of the population this year; by homicide, 0·17, by suicide 0·66, and by execution 0·004. There were 46 persons killed by lightning in the year.

There were enacted this year two important measures: "The "Coal Mines Regulation Act, 1872," and the "Metalliferous Mines "Regulation Act, 1872." No girls or women were to be employed in any underground work.

1873. The deaths from *lightning* presented marks of great fluctuation. They had increased since 1868 as follows: number of deaths 11, 7, 19, 28, 46, 21; giving in the first three years of the period 37, in the last three years 95. "Thus the electrical action "of the earth, measured by deaths from lightning, increased "rapidly from 1869."

1874. The accidents resulting from *horses* and horse conveyances were again prominent. No less than 1,313 persons had been killed since the year by these means—1,113 males and 200 females. "Carts, vans, and wagons are great offenders. The *tramcars* "evidently require great care in their management; although "they are not in such general use, they killed more people (62) "than omnibuses (55). By cabs 61 persons were killed, by "carriages 82; and this limitation of numbers implies great "skill on the part of the drivers in streets often crowded."—Dr. Farr.

Sunstroke was fatal in 71 males and 19 females.

1875. It was remarked that the introduction of every new force was followed by a certain number of deaths. "The chances of "death are increased, and the people about the machines and "instruments which the force animates, are untrained in their use, "and so do not avoid the danger that, with the requisite precautions, "are not inevitable." This was found to be especially the case with steam in all its applications.

The deaths from railways had, during the three years now ended, rapidly increased.

2. **Scotland.** The registration of deaths in this division of the kingdom came into operation with the year 1855. I believe there is nothing in the early bills of mortality of either Edinburgh or Glasgow which throws any light upon the subject of violent deaths in Scotland; and hence I pass at once to the data furnished by the registrar-general in the "Detailed Annual Reports," which I know will be found very complete.

The registrar of Scotland first divided the territory under his superintendence into three great divisions, sufficiently expressive of the varying incidents attached to each, viz., insular (consisting of 186 islands), mainland, and town districts. References to these will continuously occur in this section of our subject. More recently (1871) he has rearranged the divisions into five groups, which will be described later, and which has caused a break in some of the tables.

TABLE J.—*Showing the Deaths from Violence and from all Causes in Scotland, during the Period* 1855-76.

Year.	Violent Deaths (Scotland).			Deaths from all Causes (Scotland).	Ratio of Deaths from Violence, to Deaths from all Causes, 1 in
	Males.	Females.	Total.		
1855	1,410	503	1,913	62,004	32
'56	1,461	542	2,003	58,529	29
'57	1,509	559	2,068	61,906	30
'58	1,406	574	1,980	63,539	32
'59	1,480	574	2,054	61,714	30
1860	1,593	594	2,186	68,170	31
'61	1,547	542	2,089	62,341	30
'62	1,496	561	2,057	67,195	32
'63	1,680	580	2,260	71,481	31
'64	1,711	580	2,291	74,416	32
'65	1,799	583	2,382	70,891	29
'66	1,627	618	2,245	71,348	31
'67	1,639	557	2,196	69,068	31
'68	1,723	524	2,247	69,416	31
'69	1,729	584	2,313	75,875	32
1870	1,793	570	2,363	74,165	31
'71	1,734	627	2,361	74,712	31
'72	1,933	638	2,571	75,794	29
'73	2,124	715	2,839	76,946	27
'74	2,248	855	3,103	80,720	26
'75	2,107	801	2,908	81,761	28
'76	2,208	782	2,990	74,129	25

Commentary on Table J.

The population of *Scotland* in 1851 was 2,888,742, viz., insular, 166,487; mainland, 1,714,522; towns, 1,007,733.

1855. The violent deaths gave the proportion of 70 to every 100,000 of the inhabitants—a proportion considerably lower than that for England and Wales, where as we have seen it was at that date 82. The registrar (of Scotland) says, "The great mass of the "deaths tabulated in this class result from fractures and contusions, "from drowning, and from burns and scalds; and though the pro- "portion of these forms of violent deaths *differs to a great extent in* "*the three great divisions of Scotland*, it is surprising how very near "the general mortality from that class is in the insular, mainland, "and town districts."

In the insular districts, the violent deaths were at the rate of 63 (per 100,000 of population); in the mainland districts 66, and in the town districts 77. In the whole of Scotland, the proportions were 109 males to 35 females, or just over 3 males to 1 female.

Of the total violent deaths, 617—males 513, females 104—resulted from *fractures* and *contusions*, being at the rate of 22 to every 100,000 of the population. But in the insular districts these only bore the proportion of 10, while in the mainland they were 20, and the town districts 26.

Drowning accounted for 440 deaths—males 374, females 66—being in the proportion of 16 per 100,000 of the population. Here the insular districts claimed the proportion of 26, the mainland and town districts only 15 respectively.

Burns and *scalds* claimed 311 victims, being in the proportion of 11 per 100,000 population, and each of three divisions showed the same proportions.

1856. The deaths of males from violence this year bore the proportion of 111 to 100,000 of population, females 36 to a like population.

Attention was drawn to the proportion of *suicides;* 103 cases of violent death were attributed to this cause, being in the proportion of 3·4 to each 100,000 of the population—considerably less than those in England and Wales.

1857. It was remarked that the deaths from *drowning* in the insular districts entirely compensated for all the more common causes of violent death which occur on the mainland and in towns, so much so that the ratio of violent deaths in the insular districts in some years even exceeds that in the two other districts: thus this year the respective proportions were, insular 82, mainland 70, town 77. The fact is that the passages between the islands are rendered very dangerous by the rapidity of the tidal currents, and the broken nature of the channels, aggravated too frequently by high wind or ground swells. The large proportion of persons engaged in the fisheries is also a contributing cause.

1858. Attention was called to the fact that the fluctuation in violent deaths was almost less than in any other cause of death. The proportion this year was 69 per 100,000 of the population.

The average of the five years' observations on violent deaths has been 71 per 100,000 of population. In three of the five years this had been the actual proportion of those years, in the two other years there had been slight variations.

1859. The chief causes of violent deaths this year were, fractures and contusions 722—males 590, females 132; drowning 421—males 350, females 71; burns and scalds 303—males 137, females 166; *intemperance* 101—males 65, females 36; wounds 100—males 79, females 21; suffocation 88; hanging 58; poisons 52.

1860. The deaths from all causes in Scotland this year were unusually high, being at the rate of 2·23 per cent. of the population, whereas the average rate for the preceding five years had been

2·05. The death-rate in England and Wales this year was the same as in Scotland.

1861. The population of Scotland this year was found to be 3,062,294—males 1,449,848; females 1,612,446.

1862. The violent deaths were 70 per 100,000 of the population, or 3·22 per cent. of the specified causes of death of the year. The deaths from *burns and scalds* were at the rate of 11 per 100,000 of population, being much lower than in England; and this circumstance was believed to be due to the prevalent use of woollen garments for females in Scotland, but the use of peat instead of coal fires may have much to do with this difference.

1863. The mortality from all causes in Scotland was remarkably high this year, 2·3 per cent., and it is quite noticeable *that the mortality from violent deaths rose in a like proportion;* "as if the "deaths from violence were regulated by the same laws which "increased the deaths by the ordinary diseases." The violent deaths were 76 per 100,000 of the population this year.

1864. The highest death-rate occurred in Scotland this year which had been experienced since the Registration Act came into force—being as much as 2·3 per cent. of the population—the average rate of the preceding nine years having been 2·1 per cent. No less than 8,388 more persons died than would have died if the ratio had remained at the previous average. The violent deaths thus did not increase in a corresponding ratio.

During the ten years terminating with the present year, the violent deaths registered in Scotland had amounted to 20.901—constituting 3·4 per cent. of deaths from all causes during that period; being at the rate of 72·7 per 100,000 of the population.

1865. The violent deaths were 3·51 per cent. of the general mortality.

1867. The mortality from burns and scalds again attracted attention. The mortality during the five years 1863-67 had been 1,468—males 748, females 720. "But this excess of male deaths "was limited to the period of infancy, that is, the first five years "of life, during which the sexes are dressed in much the same "material. After the fifth year the boys begin to be dressed in less "inflammable materials, and the girls more in those inflammable "materials which constitute their dress in after life. Accordingly "between five and ten years, only 75 boys, but 95 girls lost their "lives by burning. After that period of life, notwithstanding the "more dangerous occupations in which many men are engaged, "only 216 men, but 267 women lost their lives by burning."

1871. The population of Scotland this year was found to be 3,360,018—males 1,603,143; females 1,756,875.

The registration divisions of Scotland were rearranged. See Table M.

1874. The deaths from all causes in Scotland this year show a very remarkable increase, which seems to be attributable almost entirely to the intense cold of the month of December, when the temperature fell lower than at any other period since the registration returns had been instituted. And what is most remarkable is that the violent deaths appear to have increased with even a greater intensity than the deaths from all causes combined. Very cold and very hot weather equally increase the number of accidents in England—on which more in a later part of this paper.

1875. There being no coroners' inquest in Scotland, and only an inquiry before the procurator-fiscal when there is suspicion of murder or other criminal intent, it is felt that the returns concerning homicide in all its forms are less authoritative than in England. The total return of violent deaths is not much, if at all, affected by this circumstance.

TABLE K.—*Causes of Violent Deaths in Scotland, Males and Females,* 1876.

Causes.	Males.	Females.	Total.	Percentage of Violent Deaths.
Intemperance	115	82	197	6·59
Privation	3	4	7	0·25
Want of breast milk	31	30	61	2·04
Neglect	4	1	5	0·17
Cold	42	16	58	1·94
Poison	32	23	55	1·84
Poisoned wounds	2	1	3	0·10
Burns and scalds	130	155	285	9·53
Hanging, &c.	46	16	62	2·07
Suffocation	152	120	272	9·10
Drowning	624	97	721	24·11
Fractures and contusions	769	168	937	31·34
Gunshot wounds	23	—	23	0·77
Cuts and stabs	44	8	52	1·74
Other violent causes	191	61	252	8·43

The deaths this year were not at all above the average, nor did the causes vary materially.

Suicides, homicides, and executions are included in these figures.

TABLE L.—*Showing the Violent Deaths Registered in each of the Three Great Registration Divisions*, 1855-70 (SCOTLAND).

Years.	Insular.		Mainland.		Towns.		Total.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1855....	61	21	798	270	551	212	1,410	503
'56....	75	25	828	278	558	239	1,461	542
'57....	92	21	831	302	586	236	1,509	559
'58....	82	24	797	297	527	253	1,406	574
'59....	82	22	818	284	580	268	1,480	574
1860 ...	116	31	905	298	571	265	1,592	594
'61....	64	19	859	248	624	275	1,547	542
'62....	77	18	783	258	636	285	1,496	561
'63....	111	21	865	274	704	285	1,680	580
'64....	75	13	887	267	749	300	1,711	580
'65....	74	19	891	266	834	298	1,799	583
'66....	74	17	778	274	775	327	1,627	618
'67....	57	13	821	247	761	297	1,639	557
'68....	67	10	890	243	766	271	1,723	524
'69....	82	18	848	242	799	324	1,729	584
1870....	78	16	890	271	825	283	1,793	570

After this date a new distribution of registration districts was adopted.

From 1871 inclusive, the arrangement of the abstracts (tables) in the reports of the registrar-general of Scotland is into five distinctive groups as follows:—

1. PRINCIPAL TOWNS, each containing at least 25,000 inhabitants.
2. LARGE TOWNS, each containing not less than 10,000 and not more than 25,000 inhabitants.
3. SMALL TOWNS, each with at least 2,000, and not more than 10,000 inhabitants.
4. MAINLAND RURAL, from which are excluded all towns with 2,000 or more inhabitants.
5. INSULAR RURAL, which includes the whole population of the islands of the coast, but from which are excluded the inhabitants of the four small towns of Kirkwall, Lerwick, Stornoway, and Rothesay.

The population of these respective groups in 1871 is shown in Table N, but the area has not been given yet.

TABLE M.—*Showing the Violent Deaths in each Principal Registration Group, Sexes combined, Registered during the Period* 1871-76 (SCOTLAND).

Years.	Principal Towns.	Large Towns.	Small Towns	Mainland Rural.	Insular Rural.	Total.
1871	959	215	524	617	46	2,361
'72	1,087	295	536	590	63	2,571
'73	1,094	281	690	704	70	2,839
'74	1,231	300	702	762	108	3,103
'75	1,097	316	677	743	75	2,908
'76	1,122	335	649	801	83	2,990

There was an extraordinary jump in 1873, and again in 1874, which I have already commented upon in commentary upon Table J. The chief increase in 1873 was in the mainland rural, the next important in the small towns.

TABLE N.—*Showing the Area, Population, Number, and Proportion of Violent Deaths in the Five Great Groups, adopted from the Registrar-General* (SCOTLAND).

Districts.	Area in Statute Acres.	Proportion to whole Area.	Population, 1871.	Proportion to whole Population.	Violent Deaths, 1878.	Proportion to whole Violent Deaths.	Principal Occupations.
Principal towns	—	—	1,068,556	31·80	1,122	39·98	Commercial, manufacturing
Large towns	—	—	334,257	9·95	790	28·15	Trading, manufacturing
Small ,, ...	—	—	776,087	23·10	332	11·83	Agricultural
Mainland rural	—	—	1,049,114	31·22	335	11·94	Agricultural, fishing
Insular rural	—	—	132,004	3·93	227	8·10	Fishing
	—	—	3,360,018	100·00	2,806	100·00	

This table is arranged to harmonise with similar tables for England and Wales (Table D), and Ireland (Table R), and its design is to show the intensity of violent deaths in the different districts as affected by the occupations and circumstances of those districts. The chief intensity of violent deaths is here seen to arise in the large towns.

3. **Ireland.** The registration of deaths for this division of the kingdom came into operation in 1863, under the authority of 26 Vict., cap. 11, "An Act for the Registration of Births and Deaths "in Ireland;" and the first report of the Irish registrar-general thereunder was issued in 1869, giving details for the year 1864.

The only available sources of information, regarding the causes of deaths previously, was to be obtained from the bills of mortality published in the cities and towns, of which, however, I have only seen those for the capital. The first bill of mortality for Dublin I have met with is for the year 1683, and contains (*inter alia*) the following items:—

Hurt by accident	001
By a kick	001
Broken leg	001
Fell of the new building	001
Bruised	001
Broken thigh	001
Poysoned herself	001
Killed by the gaol man	001
Drowned	001
Choked herself	001
Burnt	001
Found murdered in aunge fiel	001
Hurt and ill-used by her master and mistress	001
Hanged her self	001
,, him self	001
Drowned her self	001
Murdered	001
Hanged at the gallows	010

The old mode of keeping accounts is here shown. The total number of deaths returned for the year was 2,154; the deaths above enumerated amount to 27 in all, or about 1 in 73 of the deaths from all causes.

The returns of the registrar-general subdivide the violent deaths into five groups or sections: (*a*) accident or negligence; (*b*) homicide; (*c*) suicide; (*d*) executions; (*e*) violent deaths not classed. This is a convenient arrangement, of which we shall make use hereafter.

TABLE O.—*Showing the Deaths from Violence and from all Causes in Ireland, during the Period* 1864-79.

Years.	Violent Deaths (Ireland).			Deaths from all Causes (Ireland).	Ratio of Deaths from Violence to Deaths from all Causes, One in
	Males.	Females.	Total.		
1864	1,496	714	2,210	93,144	42
'65	1,499	684	2,183	93,154	42
'66	1,423	739	2,162	93,027	43
'67	1,485	692	2,177	93,503	43
'68	1,494	649	2,143	86,185	40
'69	1,459	672	2,131	89,593	42
1870	1,510	695	2,205	90,462	41
'71	1,488	613	2,101	88,348	42
'72	1,368	630	1,998	97,294	48
'73	1,480	647	2,127	97,537	45
'74	1,371	696	2,067	91,961	44
'75	1,464	643	2,107	98,114	46
'76	1,451	635	2,086	92,384	44
'77	1,442	609	2,051	93,543	45
'78	1,437	604	2,041	99,629	48
'79	1,364	621	1,985	105,098	52

Commentary on Table O.

The population of *Ireland* at the census of 1861 was 5,764,543, viz., 2,804,961 males, and 2,959,582 females.

1864. The deaths from violence were 40 per 100,000 of the population, or 1 in 42·1 of all the deaths returned. *Burns and scalds* claimed 619 victims—males 285, females 334; *fractures and contusions*, 608; *drowning*, 440—males 344, females 96; *suicide*, 84—males 60, females 24; suffocation, 71; *poisoning*, 25; gunshot wounds, 24; cuts and stabs, 18; lightning, 2.

1870. There was a decided increase in the violent deaths of this year, but this arose almost entirely in the class of "accidents "and negligence," and curiously enough applies to each sex in a proportionate degree.

1871. The population of Ireland by the census of this year was 5,402,759—males 2,634,123, females 2,768,636; the cause of 1 in every 37 of the violent deaths was unspecified or ill defined.

1873. The violent deaths averaged over the whole of Ireland 38·78 per 100,000 of the population. The ratio was highest in the eastern, south-eastern, and south-western divisions, and lowest in the western, north midland, and north-western divisions—see Table R.

1874. There was some fluctuation in the violent deaths in the different registration divisions of the country this year, as is seen by reference to Table O.

1875. The violent deaths of this year bore a marked similarity of proportion to that of the average of the preceding ten years.

There were held in Ireland during this year 2,707 coroners' inquests, being 1 for every 36 deaths "registered." Emphasis is placed upon the word "registered" in the reports, leading to the inference that there is some laxity about the registration.

1876. The violent deaths were slightly under the average of the preceding ten years, being 39·20 against 39·24 to each 100,000 of the population. There were 643 deaths from *fractures and contusions*, 448 from *burns and scalds*, and 437 from *drowning*.

1877. There was still a further falling off in the rate this year, being 38·42 against 39·24 average of preceding ten years.

1878. The rate was still decreasing slightly, being 38·14 per 100,000 of the population.

1879. There is a still further reduction of violent deaths to 37·02.

The following tables throw light upon some points which are not fully developed in this analysis.

It is a feature of the reports of the registrar-general for Ireland that the deaths resulting from (1) accidents or negligence, (2) homicide, (3) suicide, (4) executions, and (5) those left unclassed, are designated. For details see the following table:—

TABLE P.—*Violent Deaths, Subdivided into Classes, for Period* 1864-79 (IRELAND).

Years.	Accident or Negligence.		Homicide.		Suicide.		Executions.		Not Classed.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1864	1,299	643	34	14	64	20	2	—	97	37
'65	1,362	625	47	22	58	19	2	—	30	18
'66	1,258	631	80	60	45	22	2	—	38	26
'67	1,296	591	83	68	59	24	—	—	47	9
'68	1,273	561	87	56	68	19	—	—	66	13
'69	1,263	580	90	54	73	27	—	—	33	11
1870	1,368	631	64	32	55	25	—	—	24	6
'71	1,286	549	56	28	87	25	2	—	57	11
'72	1,225	567	61	31	73	29	—	—	9	3
'73	1,319	585	56	32	68	18	2	—	35	12
'74	1,234	633	71	29	65	34	1	—	—	—
'75	1,336	592	56	20	48	27	3	—	21	4
'76	1,292	560	55	33	74	37	3	—	27	5
'77	1,290	548	61	30	70	20	—	—	21	7
'78	1,283	556	65	27	76	17	—	—	13	4
'79	1,214	566	59	30	69	21	2	—	20	4

TABLE Q.—*Showing the Violent Deaths (including Accidental, Homicidal, and Suicidal) in each Registration Division of Ireland, registered during the Period* 1864-79, *with Average and Rate per Hundred Thousand of Population* (IRELAND).

Years.	Divisions.								Total Ireland.
	North Eastern.	North Western.	Eastern.	North Midland.	South Midland	Western	South Eastern.	South Western.	
1864	463	223	391	165	192	223	238	315	2,210
'65	416	197	385	173	189	248	198	377	2,183
'66	477	146	415	153	174	227	227	343	2,162
'67	426	186	406	159	147	256	219	378	2,177
'68	444	174	395	174	166	259	192	339	2,143
'69	443	179	374	194	159	230	191	361	2,131
1870	427	171	428	163	165	247	210	394	2,205
'71	432	167	385	174	164	227	189	363	2,101
'72	434	163	387	132	145	233	159	345	1,998
'73	464	155	417	156	149	240	204	342	2,127
'74	458	174	385	139	135	228	184	364	2,067
'75	441	166	385	165	143	240	201	366	2,107
'76	425	164	434	154	154	215	206	334	2,086
'77	444	175	433	127	167	212	184	309	2,051
'78	415	139	441	148	142	229	189	338	2,041
'79	472	165	390	145	151	236	139	287	1,985
Totals ...	7,081	2,744	6,451	2,521	2,542	3,750	3,130	5,555	33,774
Average over whole period of 16 years	442·56	171·50	403·19	157·56	158·87	234·37	195·63	347·19	2110·87
Rate per 100,000 inhabitants, 1879.	41·73	31·92	49·89	29·08	34·78	31·30	31·49	35·78	—

Note.—The average rate per 100,000 of inhabitants of all eight divisions, 35·74.

For registration purposes Ireland is divided in eight divisions, as shown in the following table:—

TABLE R.—*Showing the Area, Population, Number, and Proportion of Violent Deaths in each Registration Division, with Indication of Leading Occupations (Ireland).*

Division.	Area in Statute Acres.	Percentage of Whole Area.	Population, 1871.	Percentage of Whole Population.	Violent Deaths in 1878.	Percentage of Whole Violent Deaths.	Principal Occupation.
I. North-Eastern	2,328,305	11·46	1,111,167	20·53	415	20·33	Manufacturing, agricultural, and fishing
II. North-Western	2,392,501	11·78	526,339	9·72	139	6·81	Agricultural, manufacturing, and fishing
III. Eastern	1,993,016	9·80	787,416	14·55	441	21·61	Manufacturing, trading, fishing, and agricultural
IV. North Midland	2,019,408	9·94	511,940	9·46	148	7·25	Agricultural
V. South ,,	2,361,709	11·62	448,840	8·29	142	6·96	Agricultural
VI. Western	4,088,459	20·12	766,202	14·16	229	11·22	Agricultural and fishing
VII. South-Eastern	1,826,172	8·98	451,488	8·34	189	9·26	Agricultural, trading, and fishing
VIII. South-Western	3,313,071	16·30	808,990	14·95	338	16·56	Agricultural, trading, and fishing
Totals	20,322,641	100·00	5,412,377	100·00	2,041	100·00	

The intensity of violent deaths is here seen to fall upon the eastern registration division, which includes Dublin, city and port, and the towns along the coast in a southerly direction, where there is a large railway traffic.

4. **Foreign Countries.** I have not ready access to the data of the different continental countries of Europe in respect to violent deaths; nor indeed is it my present purpose to carry an investigation far in this direction. Still it is essential to learn to what extent the proportion of such deaths to the deaths from all causes, or to the population, differs from that which obtains with us. And to this extent at least I have some materials at hand.

The first data available are very meagre, but as these relate to the period corresponding with the commencement of the earliest of our modern records in England and Wales, it has a peculiar interest and value.

TABLE S.—*Showing the Violent Deaths, in Sweden, Prussia, and France, compared with those in England and Wales.*

Country and Date of Return.	Mean Population.	Annual Number of			To a Population of 100,000.		
		Ascertained Suicides.	Other Violent Deaths.	Total Violent Deaths	Suicides.	Accidental Deaths, &c.	Total Violent Deaths.
Sweden, 1810-30	2,616,874	134	1,637	1,771	5·1	62·6	67·7
Russia '20-34	12,393,162	1,112	4,912	6,024	9·0	39·6	48·6
France '39	34,154,224	2,747	6,402	9,149	8·0	18·7	26·8
England and Wales 1838-39................	15,666,800	1,000	10,679	11,679	6·4	68·2	74·5

The Swedish returns were understood to be made on the same principles as those in England and Wales. The mines and lakes of the country occasioned many violent deaths. The returns for Prussia and France were considered to be incomplete in some details.

In 1865 Monsieur A. Legoyt, the then head of the General Statistical Department of France, and secretary to the Statistical Society of Paris, published the results of an elaborate inquiry relative to "Accidents in Europe and the United States." The shape his investigation took was practical. 1. The ratio of accidents to the population; 2. Their ratio to the general mortality of each sex; 3. Their ratio as regards the female population, the male standard being taken at 100 in the different countries.

Under the first head of inquiry he found the proportion to be 682 in England, 679 in Norway, 575 in the United States, 232 in Russia, 202 in Spain, and 201 in Denmark per million of the population. As to France and some other countries, he enters into details which do not admit of general comparison with countries concerning which such details are not given.

It was one of the conclusions of M. Legoyt that accidental deaths were increasing in a greater ratio than the population, and this point he illustrated by special reference to France, where the following successive and increasing ratio had taken place:—15 fatal accidents to 100,000 inhabitants from 1827 to 1830; 16 ditto from 1831 to 1835; 19 ditto from 1836 to 1840; 22 ditto from 1841 to 1845; 24 ditto from 1846 to 1850; 25 ditto from 1851 to 1855; and 28 ditto from 1856 to 1860. No doubt, he said, some of this increase was due to the more exact character of recent enumerations; still, the continuously progressive rate which is here seen indicates a sure though lamentable onward movement.

He regarded it as evident from such variable proportions in the different countries, that the determining causes of fatal accidents must be of very complex nature, and could not be explained simply by what may be called the economic character of different countries.

In fact, if the predominance of manufacturing and mining industry justifies the exceptional rate of fatal accidents in England, and to a certain extent in the United States, it surely could not do so as regards Norway, the Duchy of Oldenburg, and Sweden. On the other hand, we should miss with surprise Belgium and Saxony, two of the chief industrial States of Europe, from amongst the countries with a high rate of mortality from fatal accidents, if a great development of manufacturing industry were the chief cause of such mortality. We must, therefore, he considered, fall back upon the existence of special local causes dependent on the manners, customs, and configuration of the country, perils of navigation, fishing, and modes of transport, neglect of children, or actual exposure of them to dangers of various kinds, etc. To some extent, but to a much smaller extent than he appeared to imagine, this may be true.

M. Legoyt was able only to compare a small number of countries in reference to the immediate causes or nature of accidents, but his conclusions, as far as they go, are instructive. With the exception of England, where "burns and scalds," and of the United States, where contusions and injuries (classified under "crushing and "bruising"), occupy the first place amongst accidents, "submersion" was the cause of the greatest number of deaths. Next come "falls" from an elevation, then burns, crushings, and asphyxia. Amongst the Scandinavian countries the large number of "congelations" is not to be wondered at; but there must evidently be some error as regards Spain in this particular. So also, whilst we are not surprised to find that "alcoholic excesses" play an important part in Russia and Sweden, we are struck by their insignificance in England, Denmark, and the United States; some fallacy, we suspect, likewise lurks here. It is with respect to "burns" that the ratio of fatal accidents rises higher amongst women than amongst men in all the countries under observation. As to the proportion of such accidents amongst women to 100 amongst men, it oscillated between one-fourth and one-third. It would appear to be quite exceptional in the United States, 46 per 100. In our own country the proportion is relatively high; and here a great number of female hands participate in the production of our industry. In Bavaria and in Saxony the ratio is highest during early infancy, and in the former State lowest between 40 and 50 years of age. At every age it attains its maximum through "burns," which in Bavaria are more common during summer than in winter. Women more frequently succumb to burns, suffocation by fire, submersion, and poisoning.

Children everywhere constituted a high proportion of the victims of fatal accidents. In Bavaria the latter form a very large part of the causes of mortality of childhood and adolescence, from birth to 20 years of age, and within this range the maximum is attained between the time of birth and 5 years. Submersion is the more frequent cause—particularly as regards male children—of the fatal event. Burns and poisoning are frequent in tender years; but strangely enough, children are less frequently victims in towns than country districts, the solution probably being found in the fact that they are more generally sent to school during the hours of the day when their parents' attention would be least devoted to them.

M. Legoyt found fatal accidents to be of much more frequent occurrence in summer than during the other three seasons of the year, and considered this probably due to the fact of the former season being the chief one for out-door operations, navigation, etc. In England it is found that the extremes of heat and cold are productive of non-fatal injuries. This circumstance is referred to more minutely in another portion of this paper. The proportion of non-fatal to fatal injuries he had no means of investigating.

The final conclusions of M. Legoyt were that there would not appear to be any absolute relation between the ratio of deaths from accidents and the population, and between such ratio and the total number of deaths therein. I cannot agree with him,—for I think if one fact be more clearly shown than another, alike in the historical and statistical sections of this paper, it is that the deaths by violence bear a very distinct relation to the population under observation, as also to the deaths from all causes.

The latest returns available for the principal European countries are condensed into the following table based upon one given in the fortieth report of the registrar-general:—

TABLE T.—*Showing the Population in* 1876, *and the Number of Deaths from Violence, distinguishing those from Suicide, Homicide, and Accident, in each of the undermentioned Countries.*

Countries.	Population, 1876.	Deaths from Violence	Suicide.	Homicide.	Accident and Negligence.	Proportion to 100,000 Living.			
						All Causes of Violent Deaths.	Suicide.	Homicide.	Accident and Negligence.
Switzerland	2,759,854	2,550	540	109	1,901	92·4	19·6	3·9	68·9
United Kingdom	33,304,490	25,798	2,052	533	23,213	77·5	6·2	1·6	69·7
England and Wales	24,244,010	18,358	1,770	412	16,176	75·7	7·3	1·7	66·7
Scotland	3,495,214	2,516	128	4	2,384	72·0	3·7	0·1	68·2
Ireland	5,321,618	2,083	111	88	1,884	39·1	2·1	1·7	35·3
Norway	1,787,960	1,295	126	23	1,146	72·4	7·0	1·3	64·1
Finland	1,883,556	1,179	64	66	1,049	62·6	3·4	3·5	55·7
Sweden	4,429,713	2,740	409	88	2,243	61·9	9·2	2·0	50·7
Prussia	25,693,677	15,815	3,432	547	11,836	61·6	13·4	2·1	46·1
Bavaria	5,062,125	2,629	522	198	1,909	51·9	10·3	3·9	37·7
Belgium	5,336,185	2,577	439	85	2,053	48·3	8·2	1·6	38·5
Austria	21,565,435	10,150	2,438	—	—	47·1	11·3	—	—
Italy	27,769,475	6,656	1,024	1,504	4,128	24·0	3·7	5·4	14·9

Analysis of Table T.

The above facts given for *Norway* are for the year 1873, for *Scotland* 1875, for *Finland* 1874, and for Prussia 1875.

The figures for the *United Kingdom* relate to the population inclusive of the Royal Navy and Merchant Service.

The difference between the homicides in *Scotland* and England may be partly accounted for by the returns for England being made by coroners' juries, and in Scotland by the sheriff-substitute; of 430 persons apprehended for murder or manslaughter, and 417 cases of inquest in which the verdict was murder, or manslaughter, or homicide, 247 prisoners were committed for trial in England.

The fatal pre-eminence of *Switzerland* in this table is believed to be due to falls down precipices and to avalanches. There may have been something exceptional this year. The violent deaths in 1879 were 2,508, of which 1,719 were accidents—males 1,386, females 333; suicides 701—males 606, females 95; and murders 88.

As to *Italy*, the means are at hand—thanks to its most efficient statistical bureau—for comparing the returns of violent deaths with those for England and Wales. The homicides there amounted to 1,504, as against 412 recorded in England and Wales during that year. Thus to 100,000 of population there were 5·4 homicides in Italy against 1·7 in England. If we had the same proportion, the homicides would have amounted to 1,309 in England and Wales. In Rome the proportion is much higher; it is 14·1 in Rome, in Sicily 13·7. The practice of assassination is thus shown to yield these terrible results. But while England is so much more favourably placed in this one respect, it is the reverse with the other violent deaths, for, exclusive of executions, the deaths in England were at the rate of 75·7 per 100,000 of the population, against 24·0 in Italy. Deducting the homicides, 1,504, the suicides, 1,024, there remain 4,128 violent deaths, as follows:—

TABLE U.—*Deaths from Violence in Italy,* 1876, *excluding Homicides and Suicides.*

Causes.	Numbers.	Percentage.	Rate per 100,000 of the Population.
Drowning	1,324	32·1	4·77
Falls	1,109	26·8	4·00
Burns	337	8·3	1·22
Crushes from falls of fabrics, trees, earth, &c.	332	8·0	1·20
Horses and horse conveyances	167	4·0	0·60
Lightning	147	3·5	0·53
Suffocation	137	3·3	0·50
Explosions	131	3·2	0·48
Railways	84	2·0	0·30
Violence of animals	68	1·7	0·25
Intemperance	47	1·1	0·17
Agricultural machinery	34	0·8	0·12
Injection of poisonous substances	34	0·8	0·12
Avalanches	7	0·2	0·03
Hydrophobia and bites	6	0·2	0·02
Privation	1	0·0	0·00
Unknown and various	163	4·0	0·59
Total	4,128	100·0	14·90

5. **United States.**—The earliest record we have of deaths from "accidents and injuries" in the United States is for the census year 1850. The following are the only facts available:—

Population as determined by the census of that year 23,191,876.

Deaths from all causes 323,023.

Violent deaths 11,743, being 1 in 27·5 deaths from all causes, or 3·6 per cent. of the whole.

Specified causes—

Burns and scalds	2,052,	being	17·5	per cent. of violent deaths.
Lightning	94	„	0·8	„
Drowning	2,357	„	20·1	„
Suffocation	934	„	8·0	„
Exposure to cold	73	„	0·6	„
Fractures	171	„	1·4	„
Other injuries	5,323	„	45·3	„
Homicide	227	„	1·9	„
Suicide	491	„	4·2	„
Execution	21	„	0·2	„
	11,743		100·0	

The following returns were obtained by the census of 1860:—

Population 31,443,321.

The deaths from all causes in that year were 394,153.

The violent deaths were 19,181, being 1 in 20·5 of the deaths from all causes, or 4·8 per cent. of the whole.

[Another return gave these deaths as 20,131—males 14,178; females 5,953.]

Specified causes—					
Burns and scalds		4,266,	being	22·2	per cent. of violent deaths.
Lightning stroke		191	,,	1·0	,,
Drowning		3,121	,,	16·3	,,
Suffocation		2,129	,,	11·1	,,
Exposure to cold		139	,,	0·7	,,
Neglect and exposure		162	,,	0·8	,,
Falls		1,323	,,	6·9	,,
Gunshot wounds		741	,,	3·9	,,
Railroad accidents		599	,,	3·1	,,
Other injuries		4,469	,,	23·3	,,
Homicide		989	,,	5·2	,,
Suicides—					
By gunshot	112				
,, cutting throat	82				
,, drowning	71				
,, hanging	306				
,, poison	137				
Not specified	285				
		993,	being	5·2	per cent. of violent deaths.
Execution		59	,,	0·3	,,
		19,181		100·0	

The census of 1870 yielded the following details:—

Population, 38,556,371.

Deaths from all causes 492,263.

Violent deaths 22,740, being 1 in 21·6 of deaths from all causes, or 4·6 per cent. of the whole.

Specified causes—				
1. Burns and scalds	3,391,	being	14·9	per cent. of violent deaths.
2. Lightning stroke	202	,,	0·9	,,
3. Explosions	290	,,	1·3	,,
4. Drowning	4,075	,,	18·0	,,
5. Suffocation	1,257	,,	5·5	,,
6. Exposure to cold	36	,,	0·1	,,
7. Neglect and exposure	344	,,	1·5	,,
8. Falls	2,074	,,	9·1	,,
9. Falling bodies	712	,,	3·1	,,
10. Fractures	665	,,	3·0	,,
11. Gunshot wounds	971	,,	4·3	,,
12. Other wounds	1,070	,,	4·7	,,
13. Railroad accidents	1,582	,,	7·0	,,
14. Mining accidents	365	,,	1·6	,,
15. Injuries by machinery	420	,,	1·8	,,
16. Other injuries	1,853	,,	8·2	,,
Homicide	2,057	,,	9·0	,,

Suicide—					
By gunshot	251				
„ cutting throat	133				
„ drowning	119				
„ hanging	370				
„ poison	203				
Not specified	269				
		1,345	being	5·9	per cent. of violent deaths.
Execution		31	„	0·1	„
		22,740		100·0	

I have not returns for all the individual States, and could not use them if I had. The State of Michigan may be taken as a representative State. It is away from the seaboard, and yet has water communication by the lakes; its pursuits are almost entirely agricultural; none of its towns are very large; its climate is medium, but with severe winters. Its superintendent of vital statistics, Dr. Henry B. Baker, M.D., is a gentleman well qualified for his position, being familiar with the work of his predecessors in Europe, whom, however, he does not blindly follow.

The population of the State as determined by the census of 1870 was 1,184,282—males 618,251, females 566,031.

The *deaths* from all causes in 1873 were 14,258—males 7,651, females 6,590.

The *violent* deaths in	1869	were	468,	being	5·11	per cent.	of the deaths from all causes
„	'70	„	495	„	4·59	„	„
„	'71	„	539	„	5·54	„	„
„	'72	„	541	„	4·04	„	„
„	'73	„	685	„	4·80	„	„

6. **Australia.**—I am glad to be able to add here, alike for information and comparison, the statistics relating to violent deaths in one of the most prominent sections of this great country—*Victoria.* The "Victorian Year-Book" for 1879-80, compiled by one of our own hon. members, Mr. Henry Heylyn Hayter, the government statist of the colony, contains this following table:—

TABLE V.—*Violent Deaths in Victoria during the Ten Years* 1869-78, *and during the Year* 1879, *showing the Modes of Death, and distinguishing the Sexes* (AUSTRALIA).

Causes of Death.	Ten Years, 1869-78.			Year 1879.		
	Males.	Females.	Total.	Males.	Females.	Total.
Accidents—						
Fractures and contusions	3,015	247	3,262	272	23	295
Gunshot wounds	214	35	249	17	—	17
Cuts, stabs, &c.				6	2	8
Burns and scalds	371	481	825	42	61	103
Sunstroke	142	59	201	18	4	22
Lightning	21	5	26	2	—	2
Poison	128	58	186	8	7	15
Snake and insect bite	27	13	40	1	—	1
Drowning	1,637	391	2,028	137	34	171
Suffocation	454	220	674	28	19	47
Others	88	23	111	5	5	10
Total	6,097	1,532	7,629	536	155	691
Homicide	133	75	208	9	6	15
Suicide—						
Gunshot wounds	62	1	63	8	—	8
Cuts, stabs, &c.	152	18	170	13	4	17
Poison	137	47	184	16	4	20
Drowning	134	74	208	14	1	15
Hanging	193	19	212	39	3	42
Otherwise	26	4	30	6	—	6
Total	704	163	867	96	12	108
Execution	25	—	25	1	—	1
Grand total	6,959	1,770	8,724	642	173	815

Commentary on Table V.

The deaths from violence in this colony were formerly more numerous than those from any single disease; this was especially so in the early period of the gold discoveries; but in 1879 they were less than those caused by phthisis, atrophy, or diarrhœa. Violent deaths are still much greater here than in most of the European countries.

During the eleven years ended with 1879, there had died of specified causes 65,625 males and 55,987 females. One in every 10 of the *males* had died a violent death, 1 in every 11 died of an accident, 1 in every 533 was a victim of homicide, 1 in every 95 committed suicide, and 1 in every 2,909 was executed. Of the *females* 1 in every 29 died a violent death, 1 in every 33 died of an accident, 1 in every 691 died by the hand of another, 1 in every 320 committed suicide, but happily not one was executed.

Of the 815 violent deaths in 1879 there were 691 (85 per cent.) attributed to accident, 15 (2 per cent.) to homicide, 108 (13 per cent.) to suicide, and 1 to execution. Homicides were below, but suicides were above the average. Only twice in thirteen years had the suicides exceeded 100, viz., in 1876 and 1879. Of the deaths by violence there were 642 (79 per cent.) males, and 173 (21 per cent.) females.

Speaking generally 4 males die of violent deaths in Victoria to 1 female, and the same proportion applies to deaths from accident. As to murders, there are about 2 male victims to 1 female, and as to suicides, 4 males to 1 female. Only 1 woman had been executed since the first settlement of the colony; but in the eleven years embraced in this table 26 males were executed. The only violent deaths which habitually affect females more than males are those resulting from burns and scalds.

Of the 691 accidental deaths, 43 per cent. were due to fractures and contusions, and 25 per cent. to drowning.

While it is noted that violent deaths occur in Victoria in a greater ratio than in European countries generally, it has to be stated that Switzerland has a still higher rate; and speaking of suicides separately, Switzerland and Prussia each has a higher ratio. Homicides seem to be in about the same ratio as in England and Wales.

TABLE W.—*Showing the Death-Rate from Violence in Victoria and in various European Countries during the Years named therein.*

Countries.	Year of Observation.	Proportion to 100,000 of the Population.			
		Violence of all Kinds.	Accident and Negligence.	Homicide.	Suicide.
Victoria	1879	91·7	77·8	1·7	12·2
Switzerland	'76	92·4	68·9	3·9	19·6
United Kingdom	'76	77·5	69·7	1·6	6·2
England and Wales	'76	75·7	66·7	1·7	7·3
Scotland	'75	72·0	68·2	0·1	3·7
Ireland	'76	39·1	35·3	1·7	2·1
Norway	'73	72·4	64·1	1·3	7·0
Finland	'74	62·6	55·7	3·5	3·4
Sweden	'76	61·9	50·7	2·0	9·2
United States	'70	58·9	50·1	5·3	3·5
Prussia	'76	61·6	46·1	2·1	13·4
Bavaria	'76	51·9	37·7	3·9	10·3
Belgium	'76	48·3	38·5	1·6	8·2
Austria	'76	47·1	—	—	11·3
Italy	'76	24·0	14·9	5·4	3·7

PART III.—PRACTICAL.

By way of rendering this investigation of practical value, it becomes necessary to review the results contained in the first and second parts, and test their bearing upon the present. In this way alone shall we see the increasing ratio of violent deaths to the deaths from all causes, and to the entire population, from the date when the population became systematically enumerated in the United Kingdom at the commencement of the present century.

The causes of this long continued increase in the proportion of violent deaths to deaths from all causes, and to the population, are not far to seek; they have increased with our mechanical arts, and with our social appliances; they seem, in truth, to have increased almost in the ratio of our civilization! This is not a pleasant reflection; but there seems some consolation (if a poor one) at hand: for it does appear that a maximum has been reached, and that the tide has really turned.

It is worth while to halt for a moment and survey the exact figures. The facts recorded by Table C are as follows:—During the period 1647-1700 the violent deaths (London) to each 10,000 deaths from all causes were 96·9, or including the "found dead,"* 101·4. During the period 1701-49 the proportion was less, viz., 88·2, or including the "found dead," 102·7. In the period 1750-99 the proportion had gone up to 125·1, or with the "found dead," 130·0; while during the early part of the present century, 1800-29, the proportion had increased to 162·5, or with the "found dead" to 169·4; and during the period shown in Table D, the modern period, based upon the statistics of the nation (England and Wales) the proportion has risen to 342·8 over the whole period, ranging from a minimum of 302·4 in 1849 to a maximum of 381·8 in 1856.

A comparison of the violent deaths to the deaths from all causes is not a very reliable test, for when the aggregate of deaths has been augmented by plague or any other extraordinary cause, the tendency is to make the violent deaths appear to be on the decrease; whereas in relation to the numbers living that may be at the same rate as previously, or even higher. The true test is to find the ratio of such deaths to the population at the time of observation. This was of course impossible until there were systematic numerations of the people; and in the remaining portions of this paper it will therefore be understood that the percentages given are upon the population, unless it shall be otherwise stated. And yet it is not without interest to notice how regularly on the whole (Table B) was the proportion of violent deaths to the deaths from all causes over a period of more than a century.

The point of greatest practical importance in connection with violent deaths is the constantly recurring changes in their causes, or rather in the intensity of those causes. The ratio these deaths bear to the population over a given period of time may show very little variation in the aggregate, while in the subdivisions of causes there may be, as indeed there has been, various changes of considerable significance in operation. This has been made apparent in the "commentary upon Table D," and was one of several purposes for which that commentary was instituted. For instance, in 1854 the decrease of deaths from *poisoning* is noticed as having been marked, yet the violent deaths for the year show a considerable increase—far beyond any possible increase in the population. The solution is, either that new forces were at work, or that there was a sudden increase in some of the causes previously known. The decrease in the deaths from poisoning was continuous. So again with *burns* and *scalds*, the decrease between 1860 and 1870 was very considerable, and during a portion of the decade there was a reduction in the number of violent deaths, as against periods in the previous decade; but during several years of the decade 1860-70 the violent deaths were more numerous than they had ever been at any previous period.

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* The numbers of persons "found dead" indicates a state of society happily long since passed away, where nearly *one-seventh* of the whole deaths consisted of bodies found in the streets, fields, and vacant houses and buildings.

A careful study of Table D reveals many noteworthy results. Take one, for instance: the violent deaths show a considerable advance in nearly the same period of three several decades, the incomplete returns of the decade 1840-50 not admitting of any similar contrast. Thus in decade 1850-60 the great increase occurs in the years 1854 and 1855 respectively, after which the numbers again recede. In the decade 1860-70 the great increase is in the corresponding years 1864 and 1865; then the numbers recede. In the decade 1870-80 the great influx occurs first in 1875, and is maintained in 1876, a year later than in the former decade.

Now seeking for a reason to account for this periodical advance and recession, it seems rational to suppose it may be found in the extension of our manufacturing operations during those respective periods. The first two were epochs of great commercial activity, followed by years of marked depression. It is possible that our good friends Mr. Giffen and Mr. Bourne can throw some especial light upon Col. 4 of this table from a trade point of view. I leave the point for their consideration and pass on, merely remarking that any such theory seems to encounter a sad blow in the last of the three decades (for 1875-76 were years of depression), and 1878,* which shows nearly as large a return of violent deaths in 1875, was certainly a period of very profound depression. It would seem, indeed, more as if the malignant influence of the sun-spot theory was apparent in this last decade; and this point I commend to the consideration of my friend Professor Jevons.

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* During this there are included the deaths resulting from the "Princess "Alice" disaster on the Thames, which alone accounts for about 600 drowning cases.

That there are cycles in the occurrence of accidental injuries, I have had, during thirty years of official connection with one of the leading accident insurance companies—the first that entered upon the business of insuring against general as distinguished from railway accidents only—good opportunities of knowing; but the maximum fatality of these cycles in the business of accident insurance does not correspond with the maximum periods indicated in Table D. And there is another fact of interest in this connection, which is that there are sub-cycles *applying to localities*, not ranging simultaneously with the cycles of general intensity. The policy holders are scattered pretty evenly through the country. A district embracing one or more counties or parts of counties, which has previously shown no undue tendency to casualties, suddenly becomes the scene of many and continuous disasters. This state of things continues for several months—even the particular accidents encountered bearing perhaps a general resemblance during that period—and then the locality subsides into its former state of average, and the epidemic breaks out elsewhere, far away.

I had at first supposed that some of the variations shown in Table D were consequent upon an unsettled classification in compiling the returns. The periods when violent deaths were receiving special attention from the staff of the registrar-general's department were 1856 and 1862—so I judge from the details contained in the reports for those years; and it is to be remarked that 1856 shows a decrease in violent deaths, while 1862 is followed by an increase. But I have now arrived at the conclusion that there are influences at work beyond mere incidents of this character; and in view of endeavouring to determine this and some other points, as also in view of the large interests at stake, not only in the business of accident insurance—for these companies may very well be left to take care of themselves, as they have heretofore done—but of the problems involved in association with the Employers' Liability Act, I now propose to enter upon a more minute examination of the returns of the registrar-general than any previously made.

Analysis of the Causes of Violent Deaths.

Sub-classes.—The registrar-general classes all the deaths called violent, and which make up the aggregate of "violent deaths" in England and Wales, into six broad subdivisions as follow:—

1. Connected with RAILWAYS.
2. Injuries in MINES. $\left\{\begin{array}{l}\text{Coal.}\\\text{Metals.}\end{array}\right.$
3. MECHANICAL injuries, not connected with mines or railways.

4. Chemical injuries, not connected with mines or railways.
5. Asphyxia, &c. (suspension of respiration), not connected with mines or railways.
6. Violence, not otherwise classed.

The first return made under this arrangement commenced with 1852.

Table X.—*Violent Deaths, arranged in Six Sub-Classes, from* 1852 to 1879 (England and Wales).

Year.	1	2		3	4	5	6	1	2		3	4	5	6
	Males.							Females.						
	Railways.	Mines.		Mechanical.	Chemical.	Asphyxia.	Violence.	Railways.	Mines.		Mechanical.	Chemical.	Asphyxia.	Violence.
		Coal.	Metals.						Coal.	Metals.				
1852	357	969	65	3,381	1,250	3,006	799	40	6	1	870	1,488	945	261
'53	408	996	89	3,380	1,383	2,812	901	41	15	1	838	1,551	891	297
'54	493	1,036	166	3,299	1,483	2,812	923	62	10	1	899	1,538	962	246
'55	454	907	232	3,241	1,589	2,857	793	71	6	4	762	1,834	897	227
'56	501	974	195	3,339	1,494	3,008	695	55	8	2	777	1,616	941	186
'57	—	—	—	—	—	—	—	—	—	—	—	—	—	—
'58	—	—	—	—	—	—	—	—	—	—	—	—	—	—
'59	—	—	—	—	—	—	—	—	—	—	—	—	—	—
'60						[No	returns]							
'61	—	—	—	—	—		—	—	—	—	—	—	—	—
'62	—	—	—	—	—		—	—	—	—	—	—	—	—
'63	697	978	168	4,105	1,469	3,338	970	40	6	1	1,007	1,480	1,162	350
'64	745	906	198	4,636	1,580	3,588	928	51	8	3	1,084	1,726	1,175	395
'65	885	890	141	4,833	1,521	3,810	1,025	62	7	2	1,144	1,538	1,158	358
'66	837	1,010	134	4,626	1,397	3,661	1,070	71	4	1	1,216	1,386	1,157	345
'67	822	1,317	123	4,320	1,450	3,571	1,054	55	2	–	1,143	1,396	1,208	406
'68	714	1,117	98	4,701	1,601	3,816	786	83	–	–	1,172	1,337	1,207	336
'69	735	1,076	112	4,556	1,357	3,780	803	56	1	–	1,129	1,365	1,222	305
'70	861	999	109	4,511	1,442	3,590	827	69	1	–	1,219	1,393	1,256	316
'71	1,042	921	109	4,730	1,467	3,676	733	84	3	–	1,174	1,433	1,345	276
'72	1,068	1,050	135	4,575	1,874	4,114	729	92	1	1	1,268	1,151	1,388	311
'73	1,185	882	108	4,839	1,501	3,768	617	105	–	–	1,231	1,283	1,425	302
'74	1,165	938	118	5,100	1,568	3,762	763	84	4	–	1,364	1,432	1,347	275
'75	1,151	967	123	5,108	1,597	4,332	647	83	3	1	1,508	1,558	1,528	283
'76	1,100	964	66	5,044	1,662	4,262	593	77	1	–	1,451	1,413	1,491	255
'77	1,106	823	86	5,049	1,445	4,198	437	77	4	–	1,396	1,344	1,510	209
'78	1,077	998	78	4,797	1,741	4,540	435	75	–	–	1,519	1,483	1,899	205
'79	945	1,043	68	4,494	1,631	4,227	458	84	5	–	1,434	1,445	1,568	233

Note.—The total deaths for each sex in each year is given in Table D.

A careful perusal of this table will go far to show how the fluctuations in Table D arise,—that is to say, to which of the sub-classes they are due. Thus in 1855 there was an increase of several hundreds in the violent deaths of females, while the males for that year showed a slight decrease. It is here seen that in the sub-class chemical injuries, some 300 more females than in the preceding year are enumerated. In 1864 it is seen (Table D) that there was a considerable increase in the deaths alike of males and females. This table shows that as to males it arose from a combined increase in the mechanical, chemical, and asphyxia classes, while with the females the increase was due alone to class "chemical." In 1875 the deaths of females show a sudden increase; mechanical injuries account for this. In 1878 the deaths of males and females are each heavy. The chemical and asphyxia sub-classes account for this as to males, and the mechanical, chemical, and asphyxia sub-classes as to females. A concurrent table enumerating the more prominent disasters of the last thirty years would form an important key to these variations.

Localities and Causes of Death.—Under date 1839 (commentary on Table D), I have shown the variations in the sub-classes of violent deaths in the different *localities* (*i.e.*, registration districts) of England and Wales. It will be useful that such a table be reproduced (under a different arrangement) showing the returns of the latest date for males and females :—

TABLE Y.—*Violent Deaths in England and Wales, and in each of the Eleven Divisions, in the Year* 1878, *Males and Females, (including all Deaths resulting from Accident, Negligence, Suicide, Murder, or Manslaughter).*

Number.	Causes of Death.	England and Wales.	Divisions.										
			I. London.	II. South-Eastern	III. South Midland.	IV. Eastern.	V. South-Western.	VI. West Midland.	VII. North Midland.	VIII. North Western.	IX. Yorkshire.	X. Northern.	XI. Monmouthshire and Wales.
	MALES—Total violent deaths in the year 1878	13,666	2,087	1,213	715	523	792	1,586	796	2,622	1,378	933	1,016
1	Connected with railways	1,077	120	90	74	21	38	99	97	219	115	93	108
2	Injuries in mines—												
	Connected with coal mines	998	—	—	—	—	8	141	46	374	81	138	210
	Connected with copper, tin, iron, &c., mines	78	—	—	—	—	25	3	—	7	21	16	6
3	Mechanical injuries (not connected with mines or railways)	4,797	791	404	308	216	343	544	262	866	493	294	276
4	Chemical injuries (not connected with mines or railways)	1,741	228	125	81	65	95	266	126	352	199	97	107
5	Asphyxia, &c., suspension of respiration (not connected with mines or railways)	4,540	905	535	223	202	246	484	228	757	424	278	258
6	Violence, not otherwise classed	435	43	59	29	21	37	49	37	47	45	17	51
	FEMALES—Total violent deaths in the year 1878	5,181	1,290	318	229	218	297	629	291	933	443	247	256
1	Connected with railways	75	11	4	3	1	3	1	4	18	7	9	14
3	Mechanical injuries (not connected with mines or railways)	1,519	310	123	75	64	117	167	84	269	152	79	79
4	Chemical injuries (not connected with mines or railways)	1,483	226	88	71	54	84	223	111	311	151	80	84
5	Asphyxia, &c., suspension of respiration (not connected with mines or railways)	1,899	713	118	66	85	77	207	77	305	117	72	62
6	Violence, not otherwise classed	205	30	15	14	14	16	31	15	30	16	7	17

The greatest preponderance of violent deaths shown in this table arise in three registration divisions, viz., London, the west midland, and the north-western. Thus, as to railway accidents, over 10 per cent. occur in London, and over 20 per cent. in the north-western division. As to injuries in *mines*, these necessarily occur where the mines are located. In the class mechanical injuries, a large number occur in London, only exceeded by those in the north-western division. In chemical injuries, the north-western division stands most prominent, then the west midland, and London occupies the third place. In the class asphyxia, London stands first (perhaps exceptional with the year), the north-western district next, and the west midland third: this as to *males*. As to *females*, in mechanical injuries, London first, north-western division second, west midland third. In the class chemical injuries, north-western first, London second, west midland third. In class asphyxia, London first (exceptional), north-western second, and the west midland third. In violent deaths, London and the north-western divisions stand equally.

A still more minute examination becomes necessary in order to appreciate entirely the influence of *locality* upon the causes of violent deaths; but here locality is only an indication of the nature of the employments, and hence of the risk involved.

Population of Divisions.—It is important to take note of the *population* of the several divisions, and this is shown in the following table; yet the population in itself affords no sufficient index of the liability of the division to a high percentage of violent deaths. The occupation of the people is the true test, but this is not capable of detailed demonstration. All persons familiar with our manufacturing industries understand something of their principal seats geographically, and also something of their peculiar risks mechanically.

TABLE Z.—*Showing the Area, Population, Number, and Proportion of Violent Deaths in each Registration Division, with Indication of Nature of Leading Occupations* (ENGLAND AND WALES).

Divisions.	Area in Statute Acres.	Percentage of whole Area.	Population (Estimated), 1871.	Percentage of whole Population.	Violent Deaths, Male and Female (1878).	Percentage of whole of Violent Deaths.	Principal Occupations.
I. London	75,362	0·22	3,254,260	14·33	3,377	17·93	Commercial, manufacturing
II. South-Eastern	3,994,431	10·70	2,167,726	9·54	1,561	8·28	Agricultural, seafaring
III. South Midland	3,201,325	8·58	1,442,654	6·35	944	5·01	Agricultural
IV. Eastern	3,211,441	8·60	1,218,728	5·36	746	3·96	Agricultural, fishing
V. South-Western	4,981,170	13·35	1,880,777	8·28	1,089	5·78	Agricultural, metal mining
VI. West Midland	3,956,951	10·60	2,721,931	12·00	2,215	11·75	Manufacturing, Agricultural
VII. North Midland	3,535,445	9·48	1,406,935	6·19	1,087	5·76	Manufacturing, mining (coal)
VIII. North-Western	1,998,914	5·35	3,389,044	14·92	3,555	18·86	Manufacturing, commercial
IX. Yorkshire	3,721,710	9·97	2,444,762	10·76	1,821	9·66	Manufacturing, agricultural
X. Northern	3,528,621	9·45	1,365,041	6·01	1,180	6·26	Mining, manufacturing, agricultural
XI. Monmouthshire and Wales	5,113,851	13·70	1,420,408	6·26	1,272	6·75	Agricultural, mining, manufacturing
Total	37,319,221	100·00	22,712,266	100·00	18,847	100·00	

Note.—The areas exclude tidal waters, creeks, and foreshores.

Here we learn, by a comparison of the three columns of percentages, where the force of occupation bears upon the proportion of violent deaths. The *intensity* of violent deaths in the different divisions of the kingdom is made quite apparent.

Similar test tables for *Scotland* and *Ireland* respectively have already been given (see Tables N and R).

Details of Causes of Violent Deaths in each of their Six Classes.

In view, then, of the branch of inquiry last named, I arrange the following series of tables:—

TABLE AA.—*Causes of Deaths, "in Connection with Railways," Males and Females,* 1878 (ENGLAND AND WALES).

1. Railways.	England and Wales.	Divisions as in Table Z.										
		I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.
MALES.												
Run over on the line	694	87	66	47	17	27	77	63	131	69	60	50
Collision	11	—	2	—	—	1	—	3	1	3	—	1
Carriage off rails, &c.	5	—	—	—	—	—	—	—	2	2	1	—
Fall from carriage or engine	90	14	5	2	1	4	2	5	22	11	12	12
Crushed by ,,	156	10	9	10	1	3	17	12	46	18	13	17
Struck against bridge, &c.	5	—	1	2	—	—	1	—	—	—	1	—
Locomotive machinery	7	1	1	—	1	—	—	—	—	—	2	2
Explosion of boiler	1	—	—	—	—	—	—	—	1	—	—	—
Fall from height	11	1	—	—	1	1	1	2	1	2	—	2
Crushed by fall of heavy substances on	32	2	1	7	—	—	—	2	10	4	—	6
Suffocated by fall of heavy substances on	1	—	—	1	—	—	—	—	—	—	—	—
Scalded	1	—	—	—	—	—	—	—	—	1	—	—
Other deaths (manner not stated, or otherwise than above)	63	5	5	5	3	2	1	10	5	5	4	18
Total	1,077	120	90	74	24	38	99	97	219	115	93	108
FEMALES.												
Run over on the line	56	6	1	2	1	2	1	4	17	6	8	8
Collision	3	—	3	—	—	—	—	—	—	—	—	—
Fall from carriage or engine	10	5	—	1	—	—	—	—	1	1	1	1
Other deaths (manner not stated, or otherwise than above)	6	—	—	—	—	1	—	—	—	—	—	5
Total	75	11	4	3	1	3	1	4	18	7	9	14

It is impossible to determine with precision the proportions of the deaths occurring to passengers and *employés* respectively. For a full elucidation of this latter point reference must be had to the Board of Trade returns for the corresponding year; but an approximate idea may be obtained from the nature of the injuries: thus the persons "run over" on the line, by far the most numerous class, will probably not be passengers (unless in quite exceptional cases), but those having occasion to use level crossings; and perhaps still more, plate-layers and others engaged in the repair of the permanent way.

TABLE BB.—*Causes of Death from Injuries in Coal and Metal Mines, Males and Females,* 1878 (ENGLAND AND WALES).

2. Mines.	England and Wales.	Divisions as in Table Z.										
		I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.
MALES.												
COAL MINES.												
Fall of coal, stone, &c., on	420	—	—	—	—	4	70	32	86	43	74	111
Crushed	49	—	—	—	—	—	10	4	12	6	14	3
Fall from ladder	1	—	—	—	—	—	—	—	—	—	1	—
,, in pit or shaft	51	—	—	—	—	1	13	2	11	5	5	14
,, on barrow	1	—	—	—	—	—	—	—	—	—	1	—
Rope, &c. breaking	5	—	—	—	—	—	—	—	2	—	—	3
Machinery	14	—	—	—	—	—	4	1	3	—	2	4
Explosion of steam boiler	7	—	—	—	—	—	—	—	—	—	4	3
Horse	5	—	—	—	—	1	—	1	1	2	—	—
Waggon, tram, &c.	59	—	—	—	—	1	1	3	4	12	7	31
Tub	36	—	—	—	—	—	5	2	6	1	22	—
Blasting	9	—	—	—	—	—	4	1	2	1	1	—
Explosion of fire-damp	313	—	—	—	—	—	31	—	241	5	5	31
,, gunpowder	1	—	—	—	—	1	—	—	—	—	—	—
Burnt or scalded (*manner not stated*)	2	—	—	—	—	—	1	—	—	1	—	—
Drowned	14	—	—	—	—	—	2	—	6	1	1	4
Choke-damp	8	—	—	—	—	—	—	—	—	4	1	3
Suffocated (*manner not stated*)	1	—	—	—	—	—	—	—	—	—	—	1
Other deaths (*manner not stated, or otherwise than above*)	2	—	—	—	—	—	—	—	—	—	—	2
COPPER, TIN, IRON, &C., MINES.												
Fall of stone, wood, &c., on	28	—	—	—	—	3	—	—	2	12	9	2
Crushed	4	—	—	—	—	—	—	—	1	1	2	—
Fall in shaft	11	—	—	—	—	4	2	—	1	—	3	1
,, from kibble, ladder, &c.	2	—	—	—	—	2	—	—	—	—	—	—
Machinery	2	—	—	—	—	2	—	—	—	—	—	—
Explosion of steam boiler	1	—	—	—	—	1	—	—	—	—	—	—
Waggon, tram, &c.	6	—	—	—	—	—	—	—	1	4	—	1
Blasting	12	—	—	—	—	4	1	—	2	3	2	—
Suffocated	2	—	—	—	—	1	—	—	—	—	—	1
Other deaths (*manner not stated, or otherwise than above*)	10	—	—	—	—	8	—	—	—	1	—	1
Total	1,076	—	—	—	—	33	144	46	381	102	154	216

Note.—Females, nil: this is exceptional. See Table X.

Here it is seen that the working of the metal mines in the west of England is not entirely abandoned.

Those who desire more comprehensive details respecting mining casualties will do well to consult the exhaustive "Preliminary "Report on the Rate of Fatal and Non-Fatal Accidents in and "about Mines, &c.," published by a well-known member of this Society (Mr. Neison), 1880.

TABLE CC.—*Causes of Death from Mechanical Injuries* (*not connected with Railways or Mines*) *to Males and Females*, 1878 (ENGLAND AND WALES).

3. Mechanical Injuries.	England and Wales.	Divisions as in Table Z.										
		I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.
MALES.												
Fall from scaffold, ladder	201	56	19	10	3	7	27	7	49	13	4	6
,, from window	68	30	5	—	2	4	5	—	14	3	5	—
,, down stairs	251	60	11	10	4	11	29	10	62	29	22	3
,, in ships and boats	103	17	6	—	3	13	4	2	25	6	17	10
,, from height	512	77	44	37	14	44	32	23	113	55	32	41
,, in walking, &c.	7	3	—	—	—	1	1	—	—	1	1	—
,, in sliding	1	—	—	—	—	—	—	1	—	—	—	—
,, (*not stated how*)	366	67	28	20	11	27	38	26	80	37	17	15
,, of heavy substances on	347	41	22	16	3	23	42	12	76	44	30	38
Horse or other animals	270	25	32	19	17	28	33	18	25	28	19	26
Horse conveyance—												
Carriage	53	7	3	2	4	4	10	1	5	10	2	5
Omnibus	32	13	—	—	—	—	3	1	12	3	—	—
Tramcar	16	8	—	—	—	1	1	—	2	3	—	1
Cab	47	29	2	—	2	—	—	3	7	1	2	1
Van, waggon	262	60	26	23	26	39	37	15	11	17	4	4
Dray	28	8	1	1	—	—	4	6	1	7	—	—
Cart	481	48	28	47	29	27	53	24	132	48	24	21
Others	81	6	14	6	9	3	18	4	10	3	3	5
Iron roller	1	—	—	—	—	—	—	—	—	1	—	—
Bicycle	1	—	—	—	—	—	1	—	—	—	—	—
Explosion of steam boiler	10	—	1	—	—	—	2	2	1	2	2	—
,, retort	1	1	—	—	—	—	—	—	—	—	—	—
Machinery in factory, cotton mill, &c.	31	—	—	—	—	—	3	—	14	13	—	1
Machinery, agricultural	55	—	11	7	5	7	7	6	3	2	3	4
,, marine	6	1	—	—	—	1	—	—	—	—	3	1
Other machinery or kind not distinguished	161	23	6	2	2	3	27	7	45	26	10	10
Fight	1	1	—	—	—	—	—	—	—	—	—	—
Kick	4	—	—	—	—	—	—	1	1	2	—	—
Blow, &c.	104	17	14	5	2	4	12	4	18	14	6	8
Blasting, &c	6	—	—	—	—	2	1	—	1	—	—	2
Fracture (*not stated how*)	596	74	47	49	41	36	72	47	75	63	45	47
Gunshot wounds	202	35	30	24	17	17	28	8	14	7	13	9
Cut throat	258	47	23	11	14	18	29	22	38	36	14	6
Cut, stab	52	10	6	2	1	6	7	3	7	5	1	4
Other wounds, &c.	73	4	12	5	3	8	4	5	10	7	11	4
Traumatic tetanus	44	4	7	8	1	4	1	2	5	5	3	4
Injury at birth	29	6	3	2	1	4	7	2	3	—	1	—
Operation	36	13	3	2	2	1	6	—	7	2	—	—
Total	4,797	791	404	308	216	343	544	262	866	493	294	276
FEMALES.												
Fall from scaffold, ladder	4	—	—	—	—	—	3	—	—	—	—	1
,, from window	43	18	6	3	—	2	5	—	4	3	2	—
,, down stairs	269	69	23	10	6	17	24	10	62	26	12	10
,, from height	69	29	4	1	1	3	5	—	13	6	4	3
,, in walking, &c.	4	1	—	—	—	1	—	—	1	1	—	—
,, (*not stated how*)	243	46	16	9	6	22	28	18	48	25	15	10
,, of heavy substances on	38	2	3	2	1	2	2	4	10	4	6	2

TABLE CC.—*Causes of Death from Mechanical Injuries, Males and Females,* 1878—*Contd.*

3. Mechanical Injuries.	England and Wales.	Divisions as in Table Z.										
		I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.
FEMALES—*Contd.*												
Horse or other animals	22	3	—	1	1	2	6	1	2	3	2	1
Horse conveyance—												
Carriage	18	4	1	2	—	3	1	1	2	3	—	1
Omnibus	2	—	—	—	—	—	—	—	2	—	—	—
Tramcar	3	2	—	—	—	—	—	—	1	—	—	—
Cab	13	6	1	1	—	—	2	—	3	—	—	—
Van, waggon	27	13	2	—	1	6	1	—	—	3	—	1
Dray	13	3	1	1	—	—	2	1	—	5	—	—
Cart	89	14	6	1	5	2	16	6	23	7	5	4
Others	34	6	—	3	2	3	5	—	5	3	2	5
Bicycle	2	1	1	—	—	—	—	—	—	—	—	—
Explosion of steam boiler	2	—	—	—	—	—	—	—	1	1	—	—
Machinery in factory, cotton mill, &c.	5	—	—	1	—	—	—	—	3	1	—	—
Machinery, agricultural	6	—	—	—	—	2	1	—	2	—	1	—
Other machinery or kind not distinguished	10	1	—	—	—	1	2	2	2	1	1	—
Blow, &c.	18	5	2	1	3	1	—	—	2	1	1	2
Fracture (*not stated how*)	399	51	36	29	29	36	38	34	50	45	22	29
Gunshot wounds	19	5	1	2	1	1	3	—	4	—	1	1
Cut throat	60	11	13	1	4	7	6	3	10	2	1	2
Cut, stab	27	6	2	1	—	1	5	—	4	3	2	3
Other wounds, &c.	25	4	2	1	1	2	3	1	4	4	1	2
Traumatic tetanus	14	2	2	2	—	1	1	2	2	—	1	1
Injury at birth	23	2	1	3	2	2	4	—	5	4	—	—
Operation	18	6	—	—	1	—	4	1	4	1	—	1
Total	1,519	310	122	75	64	117	167	84	269	152	79	79

There is some slight variation in the causes from year to year, but the principal items are always the same. The item in each table, injury at birth, will be eliminated in our analysis given in Table KK.

The deaths from "explosions" of various kinds are serious. These seem to admit of diminution. I am preparing a special paper on this question to be read before the Society of Arts on an early occasion. [*Vide* Journal of that Society, vol. xxix, p. 398.]

TABLE DD.—*Causes of Death from Chemical Injuries (not connected with Mines and Railways) to Males and Females*, 1878 (ENGLAND AND WALES).

4. Chemical Injuries.	England and Wales.	Divisions as in Table Z.										
		I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.
MALES.												
Burns by—												
Clothes taking fire	256	38	9	7	5	5	65	8	64	29	14	12
Fires	18	6	1	—	1	—	3	—	2	3	1	1
Lime	2	—	—	—	—	—	—	—	—	1	—	1
Manner not stated, or otherwise than above	343	30	26	15	15	26	48	42	61	40	15	25
Scalds by—												
Drinking hot water	23	3	3	2	1	2	5	4	2	—	—	1
Manner not stated, or otherwise than above	381	45	23	12	14	16	56	25	88	51	23	28
Burns or scalds by explosion of—												
Vitriol	1	—	—	—	—	—	—	—	—	—	—	1
Cotton powder	1	—	—	—	—	—	—	—	—	—	—	1
Gunpowder	18	—	2	1	—	1	—	—	5	1	6	2
Fireworks	1	—	—	—	—	1	—	—	—	—	—	—
Gases	7	—	1	—	—	1	1	—	1	1	—	2
Paraffin	2	—	—	—	—	—	—	—	1	—	1	—
Dynamite	5	—	—	—	—	—	—	—	—	—	—	5
Steam	18	1	2	—	—	1	—	—	7	2	1	4
Kind not stated, otherwise than above	3	—	—	—	—	—	1	—	—	1	1	—
Lightning	20	—	4	—	1	1	4	1	4	3	1	1
Sunstroke	184	18	18	19	13	16	21	13	32	21	4	9
Gelatio and exposure to cold	107	9	13	4	4	12	8	12	21	9	11	4
Poisoned by—												
Arsenic	12	4	2	—	1	—	2	3	—	—	—	—
Mercury	5	1	—	—	—	1	1	—	—	—	1	1
Lead	51	5	4	6	—	4	8	2	10	11	1	—
Green paint	1	—	—	—	—	—	1	—	—	—	—	—
Chloride of zinc	2	—	1	1	—	—	—	—	—	—	—	—
Ammonia	5	1	—	1	—	—	—	—	1	—	1	1
Nitre	3	1	—	—	—	—	—	1	—	1	—	—
Chlorate of potash	1	1	—	—	—	—	—	—	—	—	—	—
Soapsuds	1	1	—	—	—	—	—	—	—	—	—	—
Washing liquor	2	—	—	—	—	—	—	—	2	—	—	—
Phosphorus	3	1	1	—	—	—	1	—	—	—	—	—
Sulphuric acid	2	—	—	—	—	1	1	—	—	—	—	—
Nitric acid	2	—	—	—	—	—	1	—	—	1	—	—
Hydrochloric acid	12	6	—	—	—	1	—	1	2	—	2	—
Oxalic acid	8	3	1	—	—	—	2	—	2	—	—	—
Carbolic acid	26	8	2	3	1	—	3	1	6	1	1	—
Corrosive liquid	1	—	—	—	—	—	1	—	—	—	—	—
Opium	17	5	1	3	—	—	3	—	2	2	—	1
Morphia	5	3	—	—	—	1	—	—	—	1	—	—
Laudanum and syrup of poppies	50	9	—	2	4	1	6	1	14	5	7	1
Godfrey's cordial	2	—	—	—	—	—	—	2	—	—	—	—
Paregoric	2	—	—	—	—	1	—	—	—	—	1	—
Infant's friend	1	—	—	—	—	—	—	—	1	—	—	—
Black currant cough elixir	1	—	—	—	—	—	—	—	—	1	—	—
Alcohol	23	7	—	2	1	—	5	1	3	3	1	—
Turpentine	1	—	—	—	—	—	—	1	—	—	—	—
Methylated spirit	1	1	—	—	—	—	—	—	—	—	—	—
Chlorodyne	3	1	—	—	—	—	—	—	1	1	—	—

TABLE DD.—*Causes of Death from Chemical Injuries, Males and Females,* 1878—*Contd.*

4. Chemical Injuries.	England and Wales.	Divisions as in Table Z.										
		I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.
MALES—*Contd.*												
Poisoned by—												
Chloral	15	3	2	1	—	—	1	1	3	—	2	2
Hyoscyamus	1	—	—	—	—	—	—	—	1	—	—	—
Belladonna and atropine	5	2	1	1	—	—	1	—	—	—	—	—
Prussic acid	17	5	4	—	—	—	4	—	2	1	—	1
Cyanide of potassium	6	3	—	—	1	—	2	—	—	—	—	—
Benzoline	2	—	1	—	—	—	—	—	—	1	—	—
Hemlock	1	—	—	—	—	—	—	—	—	—	—	1
Aconite	2	—	—	—	—	—	—	—	1	—	—	1
Strychnia	7	1	—	—	1	—	1	2	—	2	—	—
Vermin killer	5	1	—	—	—	—	1	2	1	—	—	—
Liniment	1	—	—	—	—	—	—	—	—	1	—	—
Sheep scab mixture	1	—	—	—	—	—	—	—	—	—	—	1
Poisonous or unwholesome food	4	—	—	—	—	—	1	—	1	1	1	—
Overdose of medicine	1	—	—	—	—	—	—	—	1	—	—	—
Kind not stated	40	5	3	1	2	3	8	3	10	4	1	—
Total	1,741	228	125	81	65	95	266	126	352	199	97	107
FEMALES.												
Burns by—												
Clothes taking fire	406	60	29	10	7	15	93	16	97	45	18	16
Fires	5	—	1	—	—	1	—	1	2	—	—	—
Manner not stated, or otherwise than above	448	36	29	30	22	27	57	52	88	45	22	40
Scalds by—												
Drinking hot water	10	2	—	—	1	2	3	1	—	—	1	—
Manner not stated, or otherwise than above	297	48	11	12	10	28	33	13	68	39	20	15
Burns or scalds by explosion of—												
Gunpowder	2	—	—	—	—	—	—	—	2	—	—	—
Gases	1	—	—	—	—	—	—	—	—	—	1	—
Benzoline	4	—	1	1	1	—	—	1	—	—	—	—
Paraffin	3	2	—	—	—	—	—	1	—	—	—	—
Kind not stated, or other than above	1	—	—	—	1	—	—	—	—	—	—	—
Lightning	4	1	1	—	1	—	1	—	—	—	—	—
Sunstroke	42	5	4	5	2	2	7	2	6	2	2	5
Gelatio and exposure to cold	43	11	—	2	4	3	4	1	8	4	5	1
Poisoned by—												
Arsenic	9	2	—	—	1	—	2	1	1	—	2	—
Mercury	4	3	—	1	—	—	—	—	—	—	—	—
Lead	10	5	1	—	—	—	2	—	—	—	2	—
Walton's argentine	1	—	1	—	—	—	—	—	—	—	—	—
Ammonia	2	—	—	—	—	1	1	—	—	—	—	—
Carbonate of potash	1	—	—	—	—	—	—	—	1	—	—	—
Phosphorus	2	1	—	—	—	—	—	—	—	1	—	—
Iodine	1	—	—	—	—	—	1	—	—	—	—	—
Sulphuric acid	5	2	—	—	—	—	—	—	3	—	—	—
Nitric acid	2	1	—	—	—	—	1	—	—	—	—	—
Hydrochloric acid	3	3	—	—	—	—	—	—	—	—	—	—
Oxalic acid	7	5	—	—	—	—	—	—	2	—	—	—
Carbolic acid	21	9	—	1	—	—	2	1	8	—	—	—
Soldering fluid	1	1	—	—	—	—	—	—	—	—	—	—

TABLE DD.—*Causes of Death from Chemical Injuries, Males and Females,* 1878—*Contd.*

4. Chemical Injuries.	England and Wales.	Divisions as in Table Z.										
		I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.
FEMALES—*Contd.*												
Poisoned by—												
Colocynth	1	—	—	—	—	—	—	—	—	1	—	—
Ergot of rye	1	1	—	—	—	—	—	—	—	—	—	—
Opium	13	1	—	—	—	1	—	4	4	—	3	—
Morphia	2	1	—	—	—	—	—	1	—	—	—	—
Laudanum and syrup of poppies	27	4	2	—	—	1	1	6	7	3	2	1
Godfrey's cordial	1	—	—	—	—	—	—	1	—	—	—	—
Infant's ,,	1	—	—	—	—	—	—	1	—	—	—	—
,, preservative	1	—	—	—	—	—	—	1	—	—	—	—
Paregoric	1	—	—	—	—	—	1	—	—	—	—	—
Dover's powder	1	1	—	—	—	—	—	—	—	—	—	—
Soothing ,,	1	1	—	—	—	—	—	—	—	—	—	—
Cough drops	1	1	—	—	—	—	—	—	—	—	—	—
Alcohol	5	2	—	—	—	—	—	1	2	—	—	—
Chloroform	1	—	—	—	—	—	—	—	—	1	—	—
Chlorodyne	2	1	—	—	—	—	—	—	—	—	1	—
Chloral	5	2	—	2	—	—	1	—	—	—	—	—
Belladonna and atropine	4	2	—	—	—	—	1	—	1	—	—	—
Prussic acid	3	1	—	—	—	—	—	—	2	—	—	—
Cyanide of potassium	2	1	1	—	—	—	—	—	—	—	—	—
Benzoline	1	—	—	1	—	—	—	—	—	—	—	—
Paraffin	1	—	—	—	—	—	—	—	1	—	—	—
Aconite	3	—	—	—	—	—	1	1	1	—	—	—
Digitalis	1	—	—	—	—	—	—	—	—	1	—	—
Strychnia	11	—	1	3	1	—	2	—	—	4	—	—
Vermin killer	20	3	—	1	1	2	4	2	2	3	—	2
Santonine	1	1	—	—	—	—	—	—	—	—	—	—
Salt sorrel	1	—	—	—	—	—	—	—	1	—	—	—
Poisonous fungi	3	—	2	—	1	—	—	—	—	—	—	—
Green tea	1	—	—	—	—	—	—	1	—	—	—	—
Coffee grounds	1	1	—	—	—	—	—	—	—	—	—	—
Liniment	3	—	—	—	—	—	—	1	—	—	—	2
Poisonous or unwholesome food	4	—	—	—	—	—	2	—	—	1	—	1
Overdose of medicine	2	—	—	—	—	—	—	—	2	—	—	—
Kind not stated	22	5	4	2	1	1	3	1	2	1	1	1
Total	1,483	226	88	71	54	84	223	111	311	151	80	84

Here it is seen that the causes affecting the two sexes differ. The "burns and scalds by explosions" to the males were produced by nine variations, to the females by five only. On the other hand, the varieties of fatal poisonings to the females were 48 as against 43 to the males. The deaths from poisons are of growing importance, and deserve a paper specially devoted to their consideration. Such a paper I propose to read before the Society of Arts, in view of remedial measures, in due course.

Table EE.—*Causes of Death from Asphyxia (not connected with Mines or Railways) to Males and Females*, 1878 (England and Wales).

5. Asphyxia.	England and Wales.	Divisions as in Table Z.										
		I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.
Males.												
Drowned—												
While bathing	312	26	35	16	15	17	30	15	60	35	33	30
By fall overboard	77	16	16	2	7	4	6	3	7	4	6	6
Shipwreck	157	—	142	—	1	—	1	6	2	—	2	3
Collision	232	219	1	—	12	—	—	—	—	—	—	—
While sliding and skating	31	—	—	5	1	2	1	1	13	3	4	1
Boat upset	79	13	15	3	3	11	5	2	6	7	10	4
Sinking of barge	1	1	—	—	—	—	—	—	—	—	—	—
"Found drowned"	786	82	74	57	35	57	73	43	163	86	51	65
Manner not stated	1,359	181	134	82	84	85	176	84	222	150	73	88
Suffocated by—												
Food, &c.	78	14	7	6	2	3	10	4	16	14	2	—
Bed clothes	511	241	20	10	3	8	90	4	101	16	17	1
Overlying	72	—	4	3	2	7	8	8	12	8	19	1
Cat on face	1	—	—	—	—	—	—	—	—	1	—	—
Gases	13	1	—	—	—	—	—	1	5	3	2	1
Smoke, &c.	9	1	—	—	—	—	3	1	3	—	1	—
Fires	3	—	—	—	—	—	—	—	1	1	—	1
Kiln and furnace	20	1	4	2	—	2	—	1	2	1	4	3
Bichlorate of methylene	2	1	—	—	—	—	—	—	1	—	—	—
Cyanogen	1	—	—	—	1	—	—	—	—	—	—	—
Chloroform, &c.	13	3	1	—	—	1	—	—	4	2	2	—
Carbonic acid gas	20	1	2	—	-	—	5	1	5	3	3	—
Bran	1	—	1	—	—	—	—	—	—	—	—	—
Mud	1	—	—	—	—	—	—	—	—	—	—	1
Privy	1	—	—	—	—	—	—	—	1	—	—	—
Panic at music hall	35	—	—	—	—	—	—	—	35	—	—	—
Fall of earth, &c., on	9	1	3	—	—	1	—	1	—	—	3	—
Manner not stated	197	34	26	11	10	11	25	15	16	21	9	19
Hanged (*not executed*)	463	56	43	23	24	36	50	35	68	64	35	29
Strangled	42	12	6	—	1	1	1	1	11	4	1	4
Executed	14	1	1	3	1	—	—	2	3	1	1	1
Total	4,540	905	535	223	202	246	484	228	757	424	278	258
Females.												
Drowned—												
While bathing	3	—	1	—	—	1	—	—	—	—	1	—
By fall overboard	4	—	1	—	1	—	—	—	1	—	—	1
By shipwreck	3	—	1	—	—	—	—	1	1	—	—	—
Collision	348	326	—	—	22	—	—	—	—	—	—	—
While sliding and skating	1	—	—	—	—	1	—	—	—	—	—	—
Boat upset	9	—	—	—	—	3	—	2	1	1	—	2
"Found drowned"	230	35	16	12	13	8	40	12	52	24	10	8
Manner not stated	404	45	40	31	27	25	52	30	76	35	15	28
Suffocated by—												
Food, &c.	38	10	8	2	1	2	3	—	3	7	1	1
Bed clothes	473	217	19	3	4	7	73	5	109	19	17	—
Overlying	70	2	9	5	—	4	7	6	13	6	18	—
Kitten on face	1	1	—	—	—	—	—	—	—	—	—	—
Gases	1	—	—	—	—	—	—	1	—	—	—	—
Smoke, &c.	8	—	2	—	—	1	1	—	4	—	—	—
Fires	5	1	—	—	1	—	—	1	—	2	—	—

TABLE EE.—*Causes of Death from Asphyxia, Males and Females* (ENGLAND AND WALES), 1878.—*Contd.*

5. Asphyxia.	England and Wales.	Divisions as in Table Z.										
		I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.
FEMALES—*Contd.*												
Suffocated by—												
Coal gas	1	—	—	—	—	—	—	—	1	—	—	—
Charcoal	4	1	—	—	—	—	—	—	—	—	—	3
Chloroform, &c.	5	2	—	—	1	—	—	1	—	—	—	1
Carbonic acid gas	4	3	—	—	—	—	—	—	—	1	—	—
Fall of house	2	2	—	—	—	—	—	—	—	—	—	—
Fall of earth, &c., on	3	—	—	—	1	—	—	—	1	—	1	—
Panic at music hall	2	—	—	—	—	—	—	—	2	—	—	—
Manner not stated	150	48	8	9	9	10	23	7	14	6	6	10
Hanged (*not executed*)	108	13	11	4	4	11	7	10	23	15	3	7
Strangled	21	7	2	—	1	3	1	1	4	1	—	1
Executed	1	—	—	—	—	1	—	—	—	—	—	—
Total	1,899	713	118	66	85	77	207	77	305	117	72	62

This table contains a variety of items requiring more or less of special consideration. The item "found drowned," as applied to each sex, no doubt embraces many suicides incapable of proof. "Panic at music hall," causing the death of 37 persons (35 males and 2 females), may be regarded as exceptional. But a still greater item of an exceptional character is that of "collisions," including no less than 630 persons (282 males and 348 females). We know the greater part of these was occasioned by the one disaster to the "Princess Alice" on the Thames. The last item in each section of the table requires special elimination, and will be dealt with in Table HH.

TABLE FF.—*Causes of Death from Violence* (*not otherwise classed*) *to Males and Females,* 1878 (ENGLAND AND WALES).

Violent Deaths Unclassed.	England and Wales.	Divisions as in Table Z.										
		I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.
MALES.												
Starvation	5	1	—	1	—	1	—	—	1	—	—	1
Neglect	27	5	2	1	1	1	1	1	3	2	4	6
Neglected whooping cough	1	—	—	—	1	—	—	—	—	—	—	—
Navel hæmorrhage	52	9	4	1	3	1	5	2	11	12	2	2
Foreign body in lung	1	—	—	—	—	—	—	1	—	—	—	—
,, alimentary canal	10	3	2	—	—	1	1	—	2	—	—	1
Accidental rupture of intestine	2	—	1	—	—	—	—	—	—	—	—	1
Needle in foot	1	—	—	—	—	—	1	—	—	—	—	—
Tight bandaging	1	1	—	—	—	—	—	—	—	—	—	—
Bite of animal	5	1	1	—	—	—	—	—	—	3	—	—
Sting of insect	2	1	—	—	—	1	—	—	—	—	—	—
Shock from bathing when hot	1	—	—	—	—	—	—	—	—	—	1	—

Table FF.—*Causes of Death from Violence to Males and Females,* 1878—*Contd.*

Violent Deaths Unclassed.	England and Wales.	Divisions as in Table Z.										
		I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.
Males—*Contd.*												
Accident (*not otherwise described*)	159	10	24	11	4	17	23	24	10	14	4	18
Murder (*manner not stated*)	28	4	4	3	—	2	3	2	1	1	2	6
Manslaughter (*manner not stated*)	21	1	2	2	1	5	4	—	1	2	2	1
Suicide (*manner not stated*)	37	1	7	3	5	2	4	3	8	1	—	3
Injury (*how or what kind not stated*)	82	6	12	7	6	6	7	4	10	10	2	12
Total	435	43	59	29	21	37	49	37	47	45	17	51
Females.												
Starvation	2	—	—	1	—	—	—	—	—	—	—	1
Neglect	39	14	2	2	1	2	5	3	9	1	—	—
Injury after confinement	1	—	—	1	—	—	—	—	—	—	—	—
Navel hæmorrhage	53	9	3	3	6	5	6	2	9	6	2	2
Attempt to procure abortion	1	—	1	—	—	—	—	—	—	—	—	—
Foreign body in larynx	1	—	—	—	—	—	—	—	1	—	—	—
,, alimentary canal	3	1	—	1	—	—	—	—	1	—	—	—
Rupture of bladder	1	—	—	—	—	—	—	1	—	—	—	—
Inflammation of bowels	1	—	—	—	—	1	—	—	—	—	—	—
Prick of finger	1	—	—	—	—	—	—	—	—	—	1	—
Scratch of cat	1	—	—	—	—	—	—	1	—	—	—	—
Killed by ferret	1	—	—	—	—	—	—	—	—	—	—	1
Sting	1	—	—	1	—	—	—	—	—	—	—	—
Accident (*not otherwise described*)	27	2	2	—	—	2	4	6	3	—	2	6
Murder (*manner not stated*)	27	1	3	3	1	4	8	1	3	2	—	1
Manslaughter (*manner not stated*)	14	—	1	—	1	2	3	—	1	3	2	1
Suicide (*manner not stated*)	9	—	1	—	2	—	2	—	1	1	—	2
Injury (*how or what kind not stated*)	22	3	2	2	3	—	3	1	2	3	—	3
Total	205	30	15	14	14	16	31	15	30	16	7	17

There are many remarkable causes of individual deaths which can find no place in the ordinary tables of the registrar-general. The experience of the accident insurance companies could furnish many others equally remarkable.

Table GG.—*Remarkable Causes of Violent Deaths* (*the list of Examples capable of great expansion*).

Tetanus, produced by a stick being thrust up the nose—a male, 11.

Sitting on a rick-pin, which went up his body—a male, 26.

Accidentally choked by a string—a male, 6 months.

Suddenly, in consequence of a piece of orange peel getting into the wind-pipe—a male, 75.

By the passing of a piece of shrimp into the wind-pipe—a male, 7.

Accidentally swallowing a piece of tin—a female, 7.

Suffocated by a fish bone sticking in the throat—a female, 1.

Wounded in the knee from a skewer running into it—a male, 14.

Suffocated from being choked with meat—5 males, 64, 47, 2, 17 months, and 9 months; 2 females, 2 and 1.

TABLE GG.—*Remarkable Causes of Violent Deaths—Contd.*

By swallowing a large quantity of meat—a male, 1.

Accidentally, by a cherry-stone in the wind-pipe—a male, 9.

Suffocated by a piece of bread in the wind-pipe—a male, 5 months.

By swallowing a button, which choked him—a male, 7.

Accidentally hung by a trap-door catching his neck—a male, 5.

Over-exertion in winding water out of a well—a female, 25.

Choked by a horsebean—a male, 6.

Convulsions from eating hard peas—a male, 10.

Accidentally choked by a pea—a male, 1.

A knitting needle run into the hand—a female, 65.

Accidentally swallowing a marble—a male, 3.

By falling into a brewing of ale-wort—a male, 23.

Fall from a bedroom window during sleep—a female, 53.

Scalding in new-slaked lime—a female, 3.

Burnt by falling into a kiln—a male, 16.

In consequence of a quantity of fireworks exploding in his pocket—a male, 12.

Accidentally falling out of a window—3 males, 4, 4, and 3; 7 females, 9, 5, 3, 3, 3, 1, and 16 months.

Accidentally suffocated in a turn-up bedstead—a female, 9 months; another, 3 months.

Accidentally falling into a pan or pail of water—a male, 2; 6 females, 2, 1½, 1, 1½, 11 months, and 11 weeks.

Accidental fall from a table—a male, 1½.

„ falling into boiling water—2 males, 88 and 2; a female, 2.

By swallowing bug poison, not being conscious of its deadly nature—a female, 17.

Accidentally poisoned by taking phosphorus—a female, 3.

By taking poison, mixed with bread and butter, to destroy rats—a male, 13.

Accidentally taking poison, mixed with paste, to destroy vermin—a male, 8.

„ poisoned by prussic acid—a male, 2.

By eating yew berries—a female, 4.

Taking arsenic by mistake for magnesia—a female, 27.

Cantharides given by mistake—a male, 46.

Taking oil of bitter almonds—a male, 2.

„ an overdose of calomel—a male, 4; a female, 1.

Incautious use of mercury—a male, 11.

By incautiously burning wood embers in her bedroom—a female, 20.

An overdose of tartar emetic—a male, 7.

Accidentally taking corrosive sublimate—a female, 4.

Taking laudanum instead of tincture of rhubarb—2 males, 3 and 1.

Drinking aquafortis—a male, 2.

Salivation by ointment of white precipitate and oil of vitriol ignorantly applied—a female, 7.

Poisoned by eating berries of the dulcamara—a female, 7.

From inhaling the fumes of whitelead—a female, 20.

„ the effects of swallowing tobacco—a male, 21.

„ eating the root of water hemlock for the purpose of procuring abortion—a female, 30.

Poisoning from drinking brandy—a female, 5.

From taking incautiously a large quantity of gin—a female, 3.

Frozen to death, having fallen asleep in a state of intoxication—a female, 52.

TABLE GG.—*Remarkable Causes of Violent Deaths—Contd.*

Accidentally drinking a large quantity of gin—a male, 9.
„ drowned in a tub of water while the mother was intoxicated—a female, 1.
Mental effect produced by drinking rum—a female, 49.
Accidentally falling into a cistern in his cellar in a state of intoxication—a male, 80.
By drinking spirits of wine—a male, 7.
From drinking a quantity of gin—a male, 7.
Drinking undiluted rum—a female, 3.
Thrown and injured by a bull—2 males, 46 and 84.
Injured and dragged by a cow—2 males, 14, 13; a female, 77.
From the bite of a pig—a female, 9.
By swallowing false teeth—a female, 40.

Total Accidents in the United Kingdom.—It is now time that I should attempt to draw some deductions regarding the aggregate of deaths from violence in the United Kingdom. This involves a blending of the results of the preceding sets of tables. It also involves something more. It becomes necessary, in order that our statistics may have a practical value for business purposes, that we eliminate all causes of violent death which do not proceed from accident, negligence, or misadventure—misadventure not inevitable.

The items to be eliminated from the gross returns consist of three classes:—

1. Those resulting from homicide, suicide, and executions.
2. Those resulting from sunstroke and lightning.
3. Those designated "violence *not otherwise classed*," plus "exposure to cold," and "injury at birth."

The mortality resulting from these causes is next considered.

HOMICIDE, SUICIDE, AND EXECUTIONS.

Beginning with 1858, the reports of the English registrar-general distinguish these important classes. There had been some previous investigations in this direction, of which I note the following:—

Homicides.—These embrace murders, manslaughter, infanticide. No details earlier than those in the following table seem reliable.

Suicides.—In the returns for 1838 and 1839 respectively, the suicides are specified, viz., in 1838 there were 1,058—males 751, females 307; in 1839 there were returned 943 only—males 636, females 307.

Executions.—Returns were made for the five years 1852-56, as follows:—In 1852 there were 4—males 3, females 1; 1853, all males, 12; 1854, all males, 4; 1855, all males, 5; 1856 they increased to 10—males 9, females 1. The regular annual returns begin with 1858, as shown in the table which follows:—

TABLE HH.—*Showing the Homicides, Suicides, and Executions during the Period* 1858-78, *with Percentages of each upon Violent Deaths* (ENGLAND AND WALES).

Year.	Homicide.			Percentage of Violent Deaths.	Suicide.			Percentage of Violent Deaths.	Executions.			Percentage of Violent Deaths.
	Males.	Females.	Total.		Males.	Females.	Total.		Males.	Females.	Total.	
1858	215	129	344	2·4	921	354	1,275	9·0	9	—	9	0·063
'59	194	144	338	2·3	929	319	1,248	8·7	7	—	7	0·049
'60	204	173	377	2·5	990	375	1,365	9·2	10	—	10	0·067
'61	163	157	320	2·1	982	365	1,347	9·0	11	—	11	0·073
'62	277	141	418	2·8	960	357	1,317	8·8	15	2	17	0·113
'63	237	162	399	2·5	974	345	1,319	8·4	20	1	21	0·134
'64	231	181	412	2·4	993	347	1,340	7·8	21	—	21	0·123
'65	269	174	443	2·5	1,024	368	1,392	8·0	6	—	6	0·034
'66	308	172	480	2·8	951	378	1,329	7·8	11	1	12	0·071
'67	238	154	392	2·3	963	353	1,316	7·8	10	1	11	0·065
'68	271	190	461	2·7	1,117	391	1,508	8·8	8	2	10	0·060
'69	245	142	387	2·3	1,178	409	1,587	9·6	9	—	9	0·054
'70	240	141	381	2·3	1,160	394	1,554	9·3	6	1	7	0·042
'71	238	143	381	2·2	1,103	392	1,495	8·8	4	—	4	0·023
'72	212	175	387	2·2	1,095	419	1,514	8·7	10	—	10	0·058
'73	258	149	407	2·3	1,129	389	1,518	8·8	8	1	9	0·052
'74	249	160	409	2·3	1,204	388	1,592	8·8	15	3	18	0·100
'75	207	144	351	1·8	1,184	417	1,601	8·4	22	1	23	0·122
'76	235	177	412	2·2	1,312	458	1,770	9·6	21	—	21	0·114
'77	205	142	347	2·0	1,113	388	1,501	8·4	23	—	23	0·130
'78	206	168	374	2·0	1,299	465	1,764	9·3	14	1	15	0·079

Note.—The totals of executions will not necessarily agree with the criminal returns; the latter take the date of sentence, the registrar-general the date of execution.

The returns of the registrar-general for *Scotland* do not furnish such details. Those for *Ireland* do. See Table P.

SUNSTROKE AND LIGHTNING.

A certain percentage of deaths results every year from these causes; in some years the deaths from *sunstroke* are very numerous, varying with the temperature.

In the commentary upon Table D, under date 1859, I have drawn attention to some details on the subject of deaths by *lightning*; out of 103 deaths under observation in the five years 1852-56, but 3 occurred to persons under 5 years of age, and these all to males. During the same period the deaths were apportioned in the following manner amongst the registration divisions:—

TABLE II.—*Showing Deaths from Lightning in each Registration Division in* 1878 (ENGLAND AND WALES).

Registration Divisions.	Number of Deaths.	Average Annual Mortality to 100,000 Living.	Density.
I. London	2	1·6	0·3
II. South-Eastern	6	7·1	24·2
III. South Midland	3	4·7	25·3
IV. Eastern	11	19·3	28·2
V. South-Western	6	6·6	27·4
VI. West Midland	20	18·0	17·4
VII. North Midland	13	20·8	28·3
VIII. North-Western	14	10·6	7·5
IX. Yorkshire	10	10·7	19·6
X. Northern	11	21·5	34·2
XI. Monmouthshire and Wales	7	11·4	42·4
England and Wales	103	11·0	20·0

TABLE JJ.—*Showing Deaths from Sunstroke and Lightning respectively during the Period* 1852-78 (ENGLAND AND WALES).

Year.	Sunstroke.			Percentage of Violent Deaths.	Lightning.			Percentage of Violent Deaths.
	Males.	Females.	Total.		Males.	Females.	Total.	
1852	—	—	—	—	37	8	45	0·311
'53	—	—	—	—	8	2	10	0·067
'54	—	—	—	—	16	1	17	0·107
'55	—	—	—	—	14	3	17	0·111
'56	—	—	—	—	13	1	14	0·093
'57	—	—	—	—	—	—	18	0·128
'58	—	—	—	—	—	—	26	0·183
'59	—	—	—	—	—	—	17	0·119
'60	—	—	—	—	—	—	—	—
'61	—	—	—	—	—	—	—	—
'62	—	—	—	—	—	—	—	—
'63	19	2	21	0·134	3	1	4	0·025
'64	22	5	27	0·158	9	1	10	0·059
'65	27	4	31	0·179	16	3	19	0·109
'66	30	8	38	0·224	17	5	22	0·130
'67	30	14	44	0·261	14	4	18	0·106
'68	182	41	223	1·314	9	2	11	0·064
'69	63	23	86	0·521	5	2	7	0·042
'70	86	26	112	0·675	13	6	19	0·114
'71	52	14	66	0·388	23	5	28	0·165
'72	77	25	102	0·600	35	11	46	0·266
'73	71	25	96	0·556	17	4	21	0·121
'74	71	19	90	0·502	25	—	25	0·140
'75	35	11	46	0·243	13	4	17	0·090
'76	149	35	184	1·001	15	4	19	0·103
'77	67	15	82	0·463	10	2	12	0·067
'78	184	42	226	1·200	20	4	24	0·127

The deaths from each of these causes may be in part due to negligence, but mostly purely personal. In the case of a building unprotected by lightning-rods being struck with electric fluid, and any of the workpeople thereby injured, it would be a nice judicial point whether the employer could be held to be liable for negligence.

TABLE KK.—*Showing Deaths from "Violence not otherwise Classed," from Exposure to Cold (Gelatio), and from "Injury at Birth," during the Period* 1858-78 (ENGLAND AND WALES).

Year.	Injury at Birth.			Percentage of Violent Deaths.	Exposure to Cold (Gelatio).			Percentage of Violent Deaths.	Violence not otherwise Classed.			Percentage of Violent Deaths.
	Males.	Females.	Total.		Males.	Females.	Total.		Males.	Females.	Total.	
1858........	—	—	—	—	Previously to 1873 included in "violence not otherwise classed."	—	—	—	—	—	—	—
'59........	—	—	—	—		—	—	—	—	—	—	—
'60........	—	—	—	—		—	—	—	24	8	32	0·216
'61........	—	—	—	—		—	—	—	101	19	120	0·800
'62........	—	—	—	—		—	—	—	102	35	137	0·916
'63........	57	36	93	0·593		—	—	—	139	30	169	1·077
'64........	65	43	99	0·582		—	—	—	126	28	154	0·905
'65........	62	46	108	0·621		—	—	—	223	78	301	1·732
'66........	50	40	90	0·532		—	—	—	155	53	208	1·230
'67........	42	36	78	0·462		—	—	—	222	77	299	1·772
'68........	34	39	73	0·430		—	—	—	211	63	274	1·614
'69........	34	25	59	0·358		—	—	—	191	63	254	1·540
'70........	41	41	82	0·494		—	—	—	197	61	258	1·554
'71........	42	24	66	0.388		—	—	—	121	31	152	0·894
'72........	41	33	74	0·428		—	—	—	148	36	184	1·066
'73........	53	27	80	0·463	111	27	138	0·800	139	67	206	1·194
'74........	56	38	94	0·524	90	24	114	0·636	174	60	234	1·305
'75........	59	44	103	0·545	156	44	200	1·058	223	70	293	1·551
'76........	59	37	96	0·522	115	37	152	0·827	128	53	181	0·981
'77........	36	16	52	0·293	86	32	118	0·667	—	—	—	—
'78........	29	23	52	0·276	107	43	150	0·795	—	—	—	—

Accident or Negligence.—In the returns of the registrar-general for *England and Wales*, there has been given since the year 1858 a column of deaths from "accident and violence," which is obtained by deducting from the total violent deaths returned those attributed to homicide, suicide, and executions respectively. But it is clear that for the purposes in view in this paper, the figures so returned are not applicable. I give them, as they may be useful for other purposes.

TABLE LL.—*Showing the Deaths attributed to "Accident and Violence" in the Reports of the Registrar-General during the Period* 1858-78 (ENGLAND AND WALES).

Year.	Males.	Females.	Both Sexes.	Percentage of Total Violent Deaths.	Year.	Males.	Females.	Both Sexes.	Percentage of Total Violent Deaths.
1858....	9,182	3,341	12,523	88·5	1869....	10,769	3,464	14,233	86·3
'59....	9,655	3,401	13,056	92·3	'70....	10,736	3,657	14,393	86·9
'60....	9,438	3,553	12,991	88·0	'71....	11,212	3,749	14,961	88·0
'61....	9,886	3,301	13,187	88·0	'72....	11,580	3,582	15,162	87·8
'62....	9,640	3,415	13,055	87·4	'73....	11,366	3,740	15,106	87·7
'63....	10,265	3,507	13,772	87·8	'74....	11,772	3,895	15,667	87·4
'64....	11.205	3,886	15.091	88·6	'75....	12,289	4,332	16,621	88·0
'65....	11,583	3,649	15,232	87·6	'76....	11,995	4,000	15,995	87·1
'66....	11,310	3,576	14,886	88·0	'77....	11,065	4,010	15,075	85·2
'67....	11,224	3,624	14,816	88·0	'78....	12,147	4,547	16,694	85·4
'68....	11,226	3,489	14,715	86·9					

Ages at Death.—A still further process of diminution is requisite before we can arrive at net results. A very large proportion of violent deaths occurs to infants and children, and these require to be deducted before any estimates of the effect of the Act upon the working population of the country can be formed.

For the purpose of this analysis, we may take it that young persons up to the age of 14 years are prevented by the Factory Acts and the School Board from entering upon active industrial occupations. In this view, therefore, I propose to exclude all who meet with deaths from violence under the age of 15. These are shown in the following Table (MM) to have been in England an Wales in 1878, a fair average year, 6,391—males 3,908, females 2,483, or 33·9 per cent. upon the whole deaths by violence returned for the year.

The like proportions for *Scotland* and *Ireland* respectively are shown in Tables NN and OO.

TABLE MM.—*Causes of Violent Deaths at different Ages*, 1878 (ENGLAND AND WALES).

Causes.	Males.								
	Total under 15.	Ages.							
		15—	25—	35—	45—	55—	65—	75 and over.
Railways	78	255	206	196	157	125	49	11
Mines	89	283	221	187	118	79	18	3
	5	21	17	16	13	6	—	—
Mechanical	868	583	631	671	679	663	398	304
Chemical	991	83	111	139	129	149	79	59
Asphyxia	1,720	710	561	488	445	365	188	63
Violence	157	36	45	56	46	45	38	12
Total at different ages	3,908	1,971	1,792	1,753	1,587	1,432	770	452

Causes.	Females.							
	Total under 15.	Ages.						
		15—	25—	35—	45—	55—	65—	75 and over.
Railways	13	5	3	9	15	16	10	4
Mines	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—
Mechanical	381	58	69	109	135	177	226	364
Chemical	926	85	63	64	81	80	98	86
Asphyxia	1,023	177	157	171	154	123	66	28
Violence	140	6	9	14	10	11	5	10
Total at different ages	2,483	331	301	367	395	407	405	492

A further examination of this table shows that males meet with more injuries from railways and mines at age 15—25 than at any other age, either because more are employed in these occupations at this age, or because those so employed are more venturesome. From that age the number of deaths steadily decreases. With females the numbers killed by railways is greatest at age 55—65.

As to mechanical injuries the deaths of males are lighter at age 15—25 than at any except the two most advanced ages. With females these injuries are lighter at age 15—25, and increase up to the advanced ages, when they become very heavy. With each sex they are heavy during childhood.

Chemical injuries inflict a heavy mortality at the early ages with each sex; age 15—25 is the highest with males except the two most advanced ages; while with females 25—35 and 35—45 are the lightest ages, probably because the smallest numbers are then employed.

In drowning and suffocation cases generally the juvenile deaths are very heavy, and then with the males there is a steady decrease during all the later years; with females 35—45 shows a light mortality, while 45—55 is greater, after which a rapid decline.

The deaths from violence are by far the greatest at ages under 15; they increase with males at age 35—45, and with females at age 45—55, and then decline until the most advanced age in the latter, when they go up again.

TABLE NN.—*Causes of Violent Deaths at Different Ages for each Sex*, 1876 (SCOTLAND).

Causes.	Males.								Females.							
	Total under 15.	Ages.						75 and over.	Total under 15.	Ages.						75 and over.
		15—	25—	35—	45—	55—	65—			15—	25—	35—	45—	55—	65—	
Intemperance...	—	6	21	22	32	29	4	1	—	1	13	14	22	23	6	3
Privation..........	—	—	—	—	—	1	2	—	2	—	—	—	—	1	1	—
Want of breast milk	31	—	—	—	—	—	—	—	30	—	—	—	—	—	—	—
Neglect	4	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—
Cold....................	6	3	2	7	4	6	6	8	4	—	2	1	3	2	3	1
Poison	10	1	7	6	3	3	2	—	4	5	—	3	4	3	3	1
Poisoned wounds	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Burns and scalds	69	13	13	15	10	4	1	5	91	21	2	4	6	10	11	10
Hanging, &c.	1	5	4	7	9	13	6	1	—	2	1	2	4	3	2	2
Suffocation	100	5	6	9	11	14	5	2	96	1	—	10	7	4	2	—
Drowning	106	131	127	112	77	43	14	14	34	11	7	10	13	13	9	—
Fractures and contusions	101	152	118	134	111	68	58	27	34	13	2	12	19	19	29	38
Gunshot wounds	3	8	6	3	3	—	—	—	—	—	—	—	—	—	—	—
Cuts and stabs ..	2	3	7	10	7	7	7	1	—	1	1	—	1	4	—	1
Other violent causes	54	29	18	26	19	23	10	12	20	7	5	2	4	3	4	16
Total	188	357	329	351	286	211	115	71	316	62	33	58	83	85	70	73

TABLE OO.—*Causes of Violent Deaths at Different Ages for each Sex,* 1878 (IRELAND).

Causes.	Males.								Females.							
	Total under 15.	Ages.							Total under 15.	Ages.						
		15—	25—	35—	45—	55—	65—	75 and over.		15—	25—	35—	45—	55—	65—	75 and over.
Accident or negligence	371	187	155	147	131	120	102	70	267	25	27	28	36	40	69	64
Homicide	22	19	9	4	2	2	6	1	16	1	—	4	2	—	1	3
Suicide	—	3	19	17	10	11	7	9	1	3	1	3	2	3	4	—
Executions	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Violent deaths not classed	1	5	2	2	—	3	—	—	1	—	1	—	—	—	1	1
Total	394	214	185	170	143	136	115	80	285	29	29	35	40	43	75	68

Note.—In the above classification of ages I have, as a matter of convenience, added all the unclassed to the Col. 75 and over.

NET RESULTS (FATAL INJURIES).

I think we are now in a position to deal with "net results," so far as fatal accidents are concerned. The position stands thus:—

England and Wales—		
Total violent deaths registered in 1878		18,847
From which is deducted—		
1. Deaths by homicide (374), suicides (1,764), and executions (18)	2,156	
2. By sunstroke (226) and lightning (24)	250	
3. Causes not attributable to accidents ordinarily understood, viz., injury at birth (52), exposure to cold (150)	202	
		2,608
		16,239
4. From which has further to be deducted all injuries to infants, children, and boys and girls under 15 years of age (see Table OO)		6,391
Leaving net result for England and Wales or being 52·2 per cent. of the gross total		9,848
Scotland—		
Total violent deaths registered in 1876 (latest year available)	2,990	
From which is deducted—		
For causes as above specified (but many of which are not set out in detail in the registrar-general's reports) at a like ratio of 47·8 per cent.	1,429	
Leaving net result (52·2 per cent.)		1,561
Ireland—		
Fatal violent deaths registered in 1878	2,041	
From which is deducted—		
For causes as above specified at the same ratio	976	
Leaving similar net result		1,065
Net total for United Kingdom		12,474

Hence it may be regarded that the annual deaths in the United Kingdom from accident, negligence, and misadventure, to males and females of the age of 15 and upwards, average not less than 12,000. But in truth they are many more, for numbers of persons receive injuries from which they do not die at the time; they linger on for months, it may be years, and their deaths are finally, almost unavoidably, registered as resulting from other causes.

Proportion of Non-fatal to Fatal Injuries.

The most important problem yet to be worked out in connection with the "Employers' Liability Act," as with accident insurance generally, is the proportion of non-fatal injuries to be expected and paid for. In the accident insurance companies, the amount yearly paid for non-fatal injuries very far exceeds that paid for fatal injuries; and this, notwithstanding that the amount of such compensation ranges from as low as a few shillings, up to (in exceptional cases) several hundred pounds.

The accident insurance companies draw the great bulk of their business from the professional and trading classes. They do not assume to take the place of sick benefit clubs, nor are their rates usually calculated for industrial operatives. Their experience then may be regarded as many degrees more favourable than would be the business of a company for the industrial classes against injuries resulting from accidents and negligence. The experience of all insurance companies which have granted "collective "policies," applicable to operatives in engineering works, machine shops, quarries, mines, &c., has been unfavourable—that is, the claims have exceeded the calculated rates, either in number or amount. Of course it has to be remembered that, under the "Employers' Liability Act," the master is only liable for injuries resulting from the negligence of himself, and the foreman, overlookers, and others in his employ. For the results of the individual neglect of the men towards themselves, he is, I read it, not responsible; but for such injury as may thereby extend to any and all others in the works, he may be held liable. Take the case of a steam boiler explosion—which too often arise from carelessness or neglect in some form—the employer, if negligence be proved against him, is liable to compensate all those who are injured on his premises if in his employ; as also, indeed, under Lord Campbell's Act, for damage done to persons unconnected with the works. This latter liability is not a new one,—does not arise, indeed, under the Act of 1880; and care must always be exercised in making contracts that it be properly exempted.

I have tried to utilise in such estimates as are here involved various medical returns, but nearly always without success.

In the "Medical Annual," 1839 (p. 51), Mr. Curling, one of the surgeons of the London Hospital, states that, of 2,245 patients admitted on account of accidents, 129 died; the mortality was thus 1 in 19. But it has here to be remembered that it is only the more serious injuries which usually go into hospital; and, as to these, many lame and otherwise disable the survivors for the remainder of life. Injuries of the more ordinary kind, such as broken arms and legs, sprains and contusions, burns and scalds, unless in a very severe shape, do not go into hospital; and these, we have seen, constitute by far the largest proportion of all accidental injuries.

The experience of accident insurance companies, in the class of business they now undertake, and with the classes they ordinarily insure, is that out of every 100 claims, there is about 1 fatal injury and 99 non-fatals. With the industrial classes generally, the proportion of fatal cases would be larger. The fatal and non-fatal injuries alike would certainly be in excess of any present experience by the English accident insurance companies on a large scale. See commentary on Table D, 1838.

But assuming the proportion on the population all round to be the same as in the selected classes insured in the accident insurance companies—then if the deaths by accident and violence, properly so called, be only 12,000 per annum in the United Kingdom, this still gives a total of 1,200,000 (one million two hundred thousand!) cases of fatal and non-fatal injury occurring every year—a considerable portion of which may fall within the scope of the "Employers' Liability Act, 1880." What a prodigious crop of litigation may be foreseen out of all this! It is surely incumbent upon all who believe in the welfare of their race to ponder seriously upon this fact, in view of concerting means for harmonising the interests of employers and employed in this matter.

I have in the present paper furnished the means of ascertaining that the ratio of violent deaths to the population has, for many years, ranged at about 8 to the 10,000 (or 0·08 per cent.). This is just under 1 per 1,000; but it includes women, children, domestic servants, and many persons who incur no "occupation hazard." On the other hand, it undoubtedly includes (as I have already shown) many deaths which would not be regarded as "accidental" by the accident insurance companies.

If we assume the normal death-rate from accidents of all kinds to be 1 per 1,000 of the population per annum, we may safely take it that the death-rate for the more hazardous occupations reaches to threefold this percentage.* Now an insurance company always has to take cognisance of the fact that a "selection against it" is continuously going on—not necessarily always intentional—indeed rather involuntary on the part of individuals; but the combined action of the human will produces the results of adverse selection; in other words, the more risky feel the necessity of insurance and act upon it; persons following the less hazardous occupations do not feel such necessity, and therefore do not insure. In this way it comes about that the insurance companies always get a higher percentage of risk than prevails amongst the population generally.

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* Mr. Neison shows in his report (1880) already referred to, that the deaths of *miners* from accidents, in the "Lancashire and Cheshire Miners' Permanent "Relief Society" in the six years of its existence 1863-68, had been at the rate

I am disposed to think that in the case of the more hazardous occupations the proportion of non-fatal injuries may not increase in a corresponding ratio with the fatal. Thus, if in an average population the violent deaths be 1 per 1,000 of that population, and there be 99 non-fatal injuries for each fatal one, there comes to be *claims*—fatal and non-fatal combined—upon the funds of the company at the ratio of 10 per cent. per annum. But where the mortality is lifted up to 3 per 1,000 by reason of the risk of occupation, I am not prepared to say that the non-fatal claims will be raised up in a like ratio—making a total of 300 claims per 1,000. That is a point which has not yet been determined in practice over a sufficiently large area of observation. I am disposed to think that *from the severity of the injuries* a larger percentage of the cases terminate fatally, not that the entire number of injuries is lifted up to correspond with the fatal rate.

This inference finds support in the case of sickness clubs (*i.e.*, friendly or benefit societies). Mr. Neison, Mr. Finlaison, and other investigators, have found that with classes that are liable to death-claims in a severe ratio, the sickness and superannuation claims do not follow in anything like the same proportion. *The fact is the claimants are killed off at once*, and do not therefore live to come upon the funds from time to time over a series of years, as do those who are subjected to less severe bodily injuries.*

Conclusion.

I have accumulated a large mass of statistics bearing upon the problems here involved; but these have been drawn from the experience of individual insurance companies, which for the most

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of 3,295 (p. 38). Among those employed in connection with *railways*, the rate of fatal accidents per annum varied from 2½ per 1,000 on passenger traffic lines to 3½ per 1,000 on those lines possessing a heavy goods traffic (p. 51).

* This view is also borne out in part by Mr. Neison's report (1880). The actual experience of the *Miners'* Permanent Relief Funds had varied from 140 to 190 cases of temporary disability per 1,000 members; whereas the rate of mortality had varied from 3·6 down to 2·3 per 1,000 employed. In the case of railway *employés*, the disablement cases had only reached 84 per 1,000, while the death-rates had been on an average perhaps about 3 per 1,000 (p. 502).

part only insured certain selected classes. These "observations" have been made over a period of thirty years; *but the risks have been undergoing changes during this period.* The direction of these changes will be found noted up in the present paper. I do not regard this as a fitting occasion to enlarge in detail upon the past experience of the accident insurance companies, or of sickness societies, or even of those special associations—of which so many have been founded during the last half-century—in connection with railways, mines, and other industrial enterprises. The "Employers' "Liability Act" is a national measure; I cannot say I think it to be based upon the wisdom of Parliament. It has a certain show of equity in its design, but the principle it embodies must, I think, be regarded as tentative. It is an indication of the tendency of the times—savours of experimental legislation!

My present purpose is this: the measure is a national one. Its provisions apply to all classes of the community who are engaged in industrial or manufacturing pursuits. Any insurance company undertaking the business of indemnifying employers under it should be prepared to grant protection against all, or certain defined proportions of, the risks thrown upon the employer, and of course at equitable rates, otherwise the contracts will not be continued. For this reason then I have dealt with the national statistics. No general investigation of a similar character has been previously attempted. This would not have been undertaken by me at this time if I could have foreseen the labour involved—labour which might have been reduced by three-fourths if the reports of the registrars-general of the three sections of the kingdom were shaped upon uniform lines of classification and general arrangement. For most statistical and many social purposes the so-called United Kingdom is in truth three kingdoms! When shall we find a statesman sufficiently enlightened to break down these barriers of obstruction, and make our records at least uniform and really national, instead of being sectional and multiform?

The mention of statesmanship brings to my mind this fact. There is now before the House of Commons a Bill to amend the "Employers' Liability Act, 1880." The aim of this amendment appears to be to prevent the workmen from contracting themselves out of the Act. Hitherto they have only done so in view of proper protection by the aid of funds and associations, founded for the especial purposes of providing proper or agreed allowances in the event of fatal or non-fatal injury—insurance organisations in truth. It seems to me to be essentially the province of insurance to meet cases of this character. To the employer the risk he incurs under the Act of 1880 is an unknown quantity—a casualty may arise which will completely overwhelm him. Where is the protection to the workman then? May we not take a lesson from Germany? The sagacious statesman who so ably regulates the social well-being of that kingdom, sees in insurance the only safeguard that can be reached. *He is going to make it compulsory!* Here some of our short-sighted politicians are doing their worst in trying to abolish it.

The result at which I have arrived appears to be this:—Violent deaths, on an average of all classes and causes, approximate to 1 per 1,000 of the population every year. The non-fatal injuries among such classes as have heretofore insured are about 99 per 1,000 of the population each year. Hence fatal and non-fatal injuries together reach 10 per cent. per annum—that is 1 in 10 of all persons insured meets with an accidental injury, slight or serious, up to fatal, every year. I remember when the proportion was only 1 in 12. There is an advance equal to 15 per cent. upon the rate which prevailed within the last twenty years. In the United States about 1 in 8 of the insured meets with accidental injury during the year. In the United Kingdom 1 person in 10 of all classes of persons heretofore insured makes a claim every year; or in other words a person not engaged in an occupation regarded as hazardous will have an accidental injury once in ten years. If you find him on the books more frequently, his occupation or his habits render him no longer a first class risk.

In the matter of *habits*, of which I have heretofore said very little, I propose to add an appendix hereto, showing the effect of intoxication, usually designated intemperance, not only upon deaths from accidental violence, but likewise its influence upon the death-rate of the kingdom generally, so far as this can be measured by registered results. These indeed fall very far short of the actual results—incapable of measurement. I laid it down as an axiom at the very commencement of accident insurance, *that no rate of premium will cover the risk of intemperance*—so manifold and insidious are its workings in the direction of danger! The experience of a lifetime has confirmed and intensified this view. The actuary of the future—in the wider range the business is sure to take—must endeavour to guard against its consequences, as I have striven to guard against them in the past.

My task is finished. I have made the inquiry as complete as the materials within my reach will allow. To those who may attempt to draw deductions from the figures and opinions here presented, I give this word of parting advice—proceed cautiously. Those who are engaged in industrial and other pursuits know more of their real hazards than outsiders, however scientific, can ever know. Statistics in fact do not reach the whole case. The moral hazard of the business can only be compassed by judgment and experience. There was a recent opportunity—in the passing last session of the Act for taking the census of this year—to have learned how many persons in the kingdom were prevented from sickness and accident on a given day from following their usual occupations, together with the cause of the injury or disability, and its past duration. No minister of the crown had the sagacity to perceive the great value resulting from such a record. If that simple and obviously practical inquiry had been undertaken, as was urged by this and other learned societies, there would have been accomplished one step decidedly in advance. As it is, we must struggle on, making use of the best materials at our present command. These I have endeavoured to make available for the purpose in view.

APPENDIX.

Influence of Intemperance (Intoxication) upon Violent Deaths, &c.—It is certain that a very material proportion of the deaths enumerated in the preceding tables have been influenced more or less by habits of intoxication; but it is impossible to estimate to what extent this may have been the case. A drunken driver upsets a coach, several passengers are killed, he escapes; or a drunken cabman drives over children or persons in the street with the like result. While in the case of steam boiler and other kinds of explosion, the act of one man wholly or partially intoxicated may be more extensively fatal; the same in railways and steamboats.

The registrar-general has noted in his annual reports in such cases as are specified in the returns sent in to him, the effects of intemperance upon violent deaths; but these do not, and cannot reach more than a small proportion of the whole.

TABLE PP.—*Violent Deaths from (or Accelerated by) Intoxication, to Males and Females, in the different Registration Divisions of England and Wales during* 1878.

MALES.—Out of 13,666 violent deaths of males, 102 are stated to have occurred to persons while in a state of intoxication, and 11 to persons suffering from delirium tremens, and in 295 other cases death was accelerated by the supervention of erysipelas, mortification, pyæmia, or tetanus. Total 408. Here follow the details:—

Causes of Violent Death.	England and Wales.	Divisions as in Table Z.										
		I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.
Returned distinctly as occurring—												
In a state of intoxication	102	21	7	3	4	3	4	4	21	21	10	4
While suffering from delirium tremens	11	2	—	3	—	1	1	1	3	—	—	—
Accelerated by—												
Erysipelas	64	13	4	3	4	4	4	6	13	7	3	3
Mortification	28	1	—	1	3	5	7	3	2	—	6	—
Pyæmia	90	22	8	5	3	3	8	9	13	5	9	5
Tetanus	113	18	15	8	6	15	4	8	16	9	6	8

FEMALES.—Out of 5,181 violent deaths to females, 45 are stated to have occurred to persons while in a state of intoxication, and 1 to a person suffering from delirium tremens, and in 73 other cases death was accelerated by the supervention of erysipelas, mortification, pyæmia, or tetanus. Total 119.

Returned distinctly as occurring—												
In a state of intoxication	45	20	—	—	—	1	1	1	11	3	6	2
While suffering from delirium tremens	1	1	—	—	—	—	—	—	—	—	—	—
Accelerated by—												
Erysipelas	29	6	1	1	2	3	6	1	5	2	—	2
Mortification	13	2	—	2	3	—	3	1	1	—	1	—
Pyæmia	11	2	—	—	—	—	1	2	—	2	3	1
Tetanus	20	6	2	—	1	1	1	1	6	1	—	—

London stands pre-eminently bad in this table; nor does there seem reason to believe that there is anything exceptional during this particular year. I propose however to prepare a return of the proportion of deaths from intemperance registered during a series of years—registered subject to all the imperfection from want of precise knowledge already referred to.

TABLE QQ.—*Deaths from Violence, occurring "during Intoxication," to Males and Females, during the Years* 1852-75 (ENGLAND AND WALES).

Years.	Males.	Females.	Total.	Percentage of Total Deaths from Violence. (Table D)
1852	69	23	92	0·63
'53	84	23	107	0·72
'54	53	13	66	0·43
'55	76	19	95	0·62
'56	80	23	103	0·69
'57–62	No	returns for	these years.	
'63	112	18	130	0·82
'64	117	25	142	0·83
'65	94	19	113	0·65
'66	94	28	122	0·72
'67	81	33	114	0·67
'68	94	26	120	0·70
'69	110	36	146	0·88
'70	119	40	159	0·95
'71	143	53	196	1·15
'72	106	28	134	0·77
'73	100	40	140	0·81
'74	119	42	161	0·89
'75	153	59	212	1·12
'76	133	67	200	1·08
'77	130	56	186	1·05
'78	102	45	147	0·83
		Average of 21 years		0·81

It is difficult to account for the fluctuations in this table; periods of high wages do not appear to be a solution; see 1871, yet still higher 1876.

But here we have dealt with the influence of intoxication upon violent deaths only. That influence also extends to the mortality from all causes, where there is at least an equal, perhaps even a greater, difficulty in measuring its intensity. Dr. Farr, in his letter to the registrar-general (Twentieth Report, p. 171) says, "Intemperance induces various diseases *which appear under other* "*heads*, and it is difficult to over-estimate the injury to the public "health arising directly and indirectly from this cause."

I propose now to abstract from the returns of the three divisions of the kingdom, the numbers of deaths annually attributed directly to intemperance, classed under its more modern designation, in medical nosology—*alcoholism.* The relevancy of this part of the inquiry being that intemperance in all its phases tends to the multiplication of accidental injuries, only a certain undefined portion of which are fatal, and so become recorded; the non-fatals being, as I have already said, incapable of actual enumeration, are only to be reached by estimate.

TABLE RR.—*Deaths from Intemperance and Delirium Tremens* (*Alcoholism*) *during the Period* 1847-78, *excluding Violent Deaths* (ENGLAND AND WALES).

Year.	Males.		Females.		Both Sexes, Totals.	Percentage on Deaths from all Causes.	Percentage on Violent Deaths.
	Intemperance.	Delirium Tremens.	Intemperance.	Delirium Tremens.			
1847....	—	—	—	—	772	0·183	5·6
'48....	211	451	67	68	797	0·200	5·9
'49....	233	450	74	60	817	0·185	6·1
'50....	242	476	81	64	863	0·234	6·1
'51....	211	449	78	54	792	0·201	5·8
'52....	230	459	78	58	825	0·202	5·7
53....	273	430	100	79	882	0·209	5·9
'54....	224	485	94	66	869	0·198	5·7
'55....	195	483	91	53	822	0·193	5·4
'56....	171	390	66	61	688	0·176	4·6
'57....	198	429	96	55	778	0·185	5·5
'58....	195	371	93	53	712	0·158	5·0
'59....	221	475	124	70	890	0·202	6·2
'60....	212	407	106	50	775	0·183	5·2
'61....	165	359	77	56	657	0·151	4·4
'62....	162	421	84	50	717	0·164	4·8
'63....	226	424	138	47	835	0·176	5·3
'64....	298	532	169	60	1,059	0·213	6·2
'65....	304	543	133	69	1,049	0·213	6·0
'66....	308	430	138	57	933	0·186	5·5
'67....	252	326	122	43	743	0·157	4·4
'68...	247	390	102	49	788	0·164	4·6
'69....	231	388	100	45	764	0·154	4·6
'70....	202	294	106	43	645	0·125	3·9
'71....	247	320	123	50	740	0·143	4·3
'72....	256	290	128	39	713	0·144	4·1
'73....	286	330	126	35	777	0·157	4·5
'74....	380	430	188	55	1,053	0·200	5·8
'75 ...	438	419	216	70	1,143	0·209	6·0
'76....	411	406	247	56	1,120	0·224	6·1
'77....	479	370	255	42	1,146	0·229	6·4
'78....	489	290	288	49	1,116	0·207	5·9
			Average of 32 years			0·185	5·3

Note.—Down to and including 1857 all deaths registered as resulting from intemperance were classed under violent deaths, while those resulting from delirium tremens were classed under deaths resulting from diseases of the nervous system. Since that date both have been classed under zymotic.

Scotland.—The deaths attributed to intemperance in Scotland are here shown to be at a smaller ratio than in England (*vide* next table). In *Ireland* the rate is very high.

TABLE SS.—*Deaths from Intemperance, Males and Females, during the Period* 1855-76 (SCOTLAND).

Year.	Males.	Females.	Total.	Percentage of Entire Deaths from Violence (Table J).
1855	37	20	57	2·9
'56	52	26	78	3·8
'57	56	29	85	4·1
'58	51	37	88	4·4
'59	65	36	101	4·9
'60	37	18	55	2·5
'61	48	30	78	3·7
'62	39	14	53	2·5
'63	37	22	59	2·6
'64	47	30	77	3·3
'65	56	32	88	3·7
'66	45	33	78	3·4
'67	47	29	76	3·4
'68	51	31	82	3·6
'69	57	44	101	4·3
'70	56	42	98	4·1
'71	77	53	130	5·5
'72	99	52	151	5·8
'73	88	60	148	5·2
'74	153	81	234	7·5
'75	123	86	209	7·1
'76	115	82	197	6·5
		Average of 22 years		4·3

The fluctuations in this table appear almost incapable of elucidation. The increase in the three last years in the table is very remarkable.

Ireland.—The deaths from intemperance in *Ireland* bear a much larger ratio to the violent deaths from all causes than in England, as is shown by the following table:—

TABLE TT.—*Deaths resulting from Alcoholism* (*i.e., Intemperance and Delirium Tremens*), *Males and Females*, 1864-79 (IRELAND).

Year.	Males.	Females.	Total.	Percentage of Total Deaths from Violence. (Table O).
1864	91	11	102	4·6
'65	119	28	147	6·7
'66	155	24	179	8·3
'67	152	23	175	8·0
'68	122	18	140	6·5
'69	105	14	119	5·5
'70	116	15	131	6·0
'71	123	17	140	6·6
'72	134	22	156	7·8
'73	128	26	154	7·2
'74	158	38	196	9·5
'75	160	35	195	9·2
'76	122	37	159	7·6
'77	154	26	180	8·9
'78	131	29	160	8·0
'79	124	22	146	7·3
		Average of 16 years		7·3

The fluctuations here too are very considerable.

A careful examination of the three preceding tables reveals the fact that the deaths from "intemperance" in each division of the kingdom show a very decided increase over the periods during which they are respectively recorded. The fluctuations are more considerable than in most of our other tables. This may arise from irregularities in the registration (not very probable), or from some other cause not easily apparent—as for instance from high wages, the prevalence of "strikes," or the temperature of the seasons. As to England and Wales we have the influence of intemperance recorded in two forms: 1, its influence upon violent deaths; 2, its influence upon the general mortality of the kingdom; but adding these two influences together, their conjoint effect is far less than the effect shown in the death-rate of Ireland. The conjoint death-rate from intemperance as shown in the returns for *England* and *Wales* over a series of years, is over 5 per cent. of the violent deaths; in *Scotland* it has been over 4 per cent.; in *Ireland* over 7 per cent.!

DISCUSSION *on* MR. C. WALFORD'S PAPER.

MR. CHARLES HARDING having expressed his great pleasure in listening to the paper, said he did not intend to occupy the time of the meeting by going over all the ground covered by Mr. Walford. He could only deal with the business view of accidents as connected with insurance. Mr. Walford had said that there were cycles in the occurrence of accidental injuries, of which he had good opportunities of knowing. Now he (the speaker) might as well supply what Mr. Walford did not seem to supply in regard to this circumstance, namely, that those cycles were brought about, as far as localities were concerned, more by the active exertions of agents in pushing the business of their companies. What he meant to say was, that in localities where agents were particularly active in pushing their business, the effect of cultivating an active insurance business was to cultivate the accidents of localities. It was a singular thing, that accident companies had to deal very often not only with cases of accidents pure and simple, but with cases which were attributable to accidents, but which were due to other causes. He would tell them of a case where an elderly gentleman, passing along a street, sprained his ankle. In the course of three weeks afterwards, notice was given to the office that the gentleman had died from the effects of his accident. But when the certificate of the medical man came to be presented to the office, the cause of death was put down as "Injury to ankle—diabetes." Therefore in dealing with many of these classifications, they must take care that they could always rely on the certificate of the medical referee. His past experience with accident companies was that medical men did now and again favour their patients against the companies. In conclusion he thought there was nothing to call for special remark in regard to the paper, except so far as he did not quite go the length of Mr. Walford in saying that the death claims amounted to one in a hundred. They were rather more favourable in the company to which he belonged. He congratulated Mr. Walford on the very able paper which he had read to the Society.

Mr. L. L. Cohen said that Mr. Walford established, as far as any tables could establish, the fact that accidents which occurred to workmen, or to any other class of persons, were capable of being reduced to a general average. Very possibly there might be cases arising of particular injustice, or of particular advantage either against the employed and in favour of the workmen, or *vice versâ*, and therefore to found permanent legislation at the present time, dealing necessarily with circumstances as they now existed, would entail the result that one class might be hereafter unduly benefited, and another class unduly prejudiced. They might depend upon it as a general principle, that the best course was to leave trade matters to regulate themselves, and not attempt to legislate upon them. He was not going to follow Mr. Walford in his average tables, which were full of interest, and which they could not too much admire, in view of the great labour they had cost the compiler, but he thought this general deduction must come from them, viz.: that the intervention of the legislature in these matters was entirely superfluous. It was only necessary that the teachings of economical science should be brought sufficiently home to masters and men, to lead them to understand that legislative interference was not in any way necessary, and they would then understand how they could themselves cover all the risks which might be cast upon them. If a man chose to take an employment which was dangerous, that was a question in which it was not for anyone to control him; but if he took that employment, he ought to know as nearly as science could teach him the extent of his risks, and he should be taught that it was part of his business that he should protect himself from those risks, and exact from his master a sufficient wage to provide against them. He thought this phase of the question was of great importance for the Society to teach, and if Mr. Walford's paper would bring to the minds of people the universality of that principle, and that masters and men, who had equal rights, could do for themselves what parental legislation sought to do for them, he thought the effect of this paper would be indeed most valuable.

Mr. F. G. P. Neison wished to bear testimony to the obligations which the Society was under for the valuable paper which Mr. Walford had read. Having had occasion during the last few years to go over a good deal of the same ground, he could speak with some knowledge of the amount of labour involved in getting together the facts contained in the paper. He would not have risen to speak, but for the fact that he had some special information on this subject, through the introduction last session of the Employers' Liability Bill. At that time a great number of employers were in deadly fear and tremor as to the responsibility which would be placed upon them by the passing of the Act, and instructed him to inquire into the matter, to ascertain what would be the practical operation of the Bill; and for that purpose he had special facilities. Well they naturally thought that if they took the question of mines first, they would undoubtedly be dealing with the most dangerous class of occupation in this country, and therefore the reports of the inspectors of mines for twenty years were carefully analysed, and some large colliery accident funds supplied additional information. To sum up the matter as far as mines were concerned, he might state that the result arrived at was that the rate of fatal accidents among miners might be safely put down at 23 per 10,000. It had been some ten or fifteen years ago as high as 36, but he was glad to notice that each year the rate had been reduced. They next proceeded to the subject of railways, and here he must say they were obliged to have recourse to returns other than those of the Board of Trade, which did not take in all the accidents that occurred. Well the result of their investigations was this, that the rate of accidents was found to depend materially upon the nature of the traffic conducted upon the line. If they took a passenger line, like some of the lines south of London, they found that in the course of the year some 25 out of every 10 000 *employés* met with fatal accidents. But when they went to large goods traffic lines, like those north of the Thames, the rate ran up to 35; so that they were surprised to find that while the accidents in mines were only 23 in 10,000, in railways under the most favourable circumstances the rate was 25. Since that inquiry he had had special facilities in connection with the large trades union in connection with the railways, and it was found that the facts arrived at were completely borne out by the experience of the union. They next proceeded to a branch of inquiry not mentioned there that evening. They investigated the returns of the Navy for twenty years; and they found although the rate of accidents in the navy had decreased very considerably in the last few years, taking an average of fifteen years, the rate of deaths from violence in that service was 40 in 10,000. In the mercantile marine the rate was astounding. They found there that instead of 40, the deaths were as high as 150. They found one very considerable element to account for this, and that was, that the deaths from shipwrecks alone in the mercantile marine amounted to 80 in 10,000, which still left 70 due to causes other than shipwreck. Hitherto he had dealt with fatal accidents, but now as far as non-fatal accidents were concerned, they found taking the country as a whole that about one-fifth of the men employed in and about mines met with an accident of greater or less intensity every year. In some mines they found the rate ran up to a half of those employed. A significant fact in their inquiry was this, that they ascertained with regard to the north of England, that when the coal trade was bad, the rate of non-fatal accidents increased wonderfully, and men whose backs were sprained in times of depression were never heard of in times of prosperity; but always when the price of labour went down, the men got their backs sprained with greater intensity. Turning to quite another branch of the subject, and with regard to accidents all over the kingdom from horse vehicles, they would find that whereas in London by far the greater portion of persons were killed by waggons, outside London it was by light carts, whatever might be the explanation. In conclusion the speaker said as to the division of the United Kingdom which seemed to be a great hindrance in the way of the statistician, he thought as one result of the report from this Society to the Government in connection with the next census, the Registrars-general would have to adopt a uniform system of compiling their statistics for the three kingdoms.

Dr. Graham Balfour, F.R.S., expressed the gratification he had felt in listening to Mr. Walford's very interesting paper. He had some knowledge of the labour involved in compiling such an amount of statistics, and he had seldom heard a paper read in the Society on which more careful work appeared to have been bestowed. He should like, however, to call Mr. Walford's attention to the question of mortality by poisoning. He could not at that moment say positively, but he was disposed to think that the diminution in the number of deaths by poison might probably be to some extent a result of the legislation of comparatively recent years on the subject of the sale of poisons. The beneficial effects of precautions against deeds of violence were well shown in the case of suicides in the army. At one time the attention of the military authorities was called to the large number of suicides by firearms in the army, and the practice of issuing ball cartridge to be kept in their possession by soldiers in the barrack room discontinued, and consequent upon this change the number of suicides had considerably diminished. He might also mention that a good many years ago it was the practice invariably to allow soldiers, or rather to compel them, to wear their side arms on all occasions when out of barracks; and the consequence was that there were a very large number of cases brought before the police magistrates in which serious assaults were committed by them with their bayonets. The result of a discontinuance of that practice was that the number of serious assaults diminished. He thought these points were worth being remembered, as showing how much could be done by proper precautions in preventing deaths and accidents by violence. There was another point which Mr. Walford brought forward in his paper, and that was the influence of intemperance on mortality. He would recommend Mr. Walford to look into the question of age in that connection, for he was satisfied from an inquiry that he had made on that subject many years ago, it would be found that at the higher ages, say above 40, the proportion of deaths from intemperance would be found to increase rapidly with the advance of life.

Mr. N. A. Humphreys, having expressed his concurrence with the views generally set forth in the paper, thought it was satisfactory to know that the proportion of deaths from violence was decreasing. So far as it was possible to judge from the returns of the registrar-general, the proportion of deaths from violence in England and Wales during the last fifteen years had declined from 797 per million to 675 in England and Wales; and the death-rate from violence in 1880 was lower than in any previous year.

Mr. E. Hepple Hall was of opinion that if there was one point upon which he thought the paper exhibited weakness, it was in regard to the quotation made from the reports of Dr. Henry Baker, and although he (the speaker) felt a great deal of hesitancy in appearing to challenge them, he could not help stating that he thought Mr. Walford had been unfortunate in the selection of the State of Michigan as a representative State, or as a test of what he wished to bring out in his paper. It was said with regard to Michigan: "It is away from the seaboard, and yet has water communication by the lakes; its pursuits are almost entirely agricultural." Now in that he must differ from the reader of the paper, because although greatly agricultural, Michigan was, more strictly speaking, in one sense at any rate, a manufacturing State. It was largely a lumber field, and the pursuits of the people were largely those of sawyers, millers, and lumber men. He would refer to one other point, and that was to the paragraph which said: "The causes of this long continued increase in the proportion of violent deaths from all causes and to the population, are not far to seek; they have increased in our mechanical arts and with our social appliances; they seem in truth to be increased almost in the ratio of our civilisation." Now he (the speaker) thought they would all join most heartily in re-echoing the sentiment expressed by Mr. Walford that this was not a pleasant reflection, and it would be worth while if some of the Fellows with an assiduity such as the compiler of this paper had shown, could set to work to find out what those causes were mainly attributable to. With regard to intemperance which had been adverted to by Dr. Balfour, they all knew that violent deaths were largely attributable to that cause. He thought, if he might offer an opinion on the subject, that would prove one of the most interesting subjects of the inquiry. There had undoubtedly been a great decrease in the number of absolute deaths from violence since the reform movement began in regard to temperance.

The President (James Caird, Esq., C.B., F.R.S.), in expressing the general feeling of the Society, had to offer Mr. Walford a most cordial vote of thanks for the excellent paper which he had read. He thought it would be of lasting benefit in the investigation of this important subject, and did credit to the Statistical Society. He entirely coincided with Mr. Walford and the other speakers, as to the fact that too little was made of the census returns. It was a great opportunity offered for gaining a knowledge, not only of the increase of the population, or its decrease in some quarters, but it might also be made more the means of ascertaining an improvement or the reverse in many social and other conditions of the people. He hoped that the special difficulty experienced by Mr.

Walford in his investigations would be obviated by a greater uniformity in the future in collecting the statistics of the three kingdoms.

Mr. Cornelius Walford, after acknowledging the vote of thanks accorded to him, briefly criticised the remarks of the various speakers. Dealing first with Mr. Harding, he quite admitted the force of that gentleman's observations with regard to the zeal of some agents in pushing their business, and it did happen that when accidents arose the importance of insurance was greatly magnified, and the sum paid by the insurance companies was held up as an example of liberality, and people flocked into them frequently, and too quickly, having accidents of a not dissimilar character. There were cycles in many things connected with human life, and in this matter of accidents, he had come to the conclusion, after several opportunities for observation, that there were actual cycles in it. With regard to sub-cycles, he could not say how much was due to the force of example, and how much to fraud and to influences that were not capable of being measured in any way. As to medical certificates, he had known too much about the discreditable way in which doctors sometimes lent themselves to claims made upon insurance companies, not only in accident, but in life companies and friendly societies. And he was sorry to say coroners were often more lax than the doctors, if possible. The real object of a coroner's inquiry was to ascertain the true cause of death, but when a number of neighbours of the person killed sat as a jury, some of them knowing that the life of the deceased was insured, he was sorry to say that the evidence was very often considerably coloured not to say distorted by the fact. This tendency, however, could be largely obviated if the coroners would only do their duty in ascertaining the true causes of death, and by being doubly careful where it transpired that the life was insured, for in such cases even a real motive for suicide sometimes appeared, certainly for creating injuries which sometimes terminated fatally. If judicial care were taken in the 28,000 coroner's inquiries annually conducted in England, Wales, and Ireland, they would as a rule have justice done, and the truth established ; whereas now a coroner's inquiry was too often a means of misrepresentation, and even of direct fraud. Mr. Lionel Cohen had spoken as to legislative interference, and he (the speaker) did not think that the Employers' Liability Act was the best thing that could have been done by Parliament, for the small employers of labour stood to be ruined by its operations, while the larger employer was much more likely to obtain an annual average of results. It was for the sake of the small employers of labour that he wished to tabulate statistics on which insurance contracts might be based, and so furnish relief and protection where it was most needed. Referring to Mr. Neison's remarks about his inquiry last year, the speaker thought it was unnecessary for him to follow them, inasmuch as they were confirmatory on the whole of the conclusions which his own experience over a long series of years had enabled him to arrive at —a circumstance which was very gratifying to him, knowing as he did Mr. Neison's wide information on the subject. He begged to refer Dr. Balfour to the commentary on Table D in his paper, where he had given a large amount of facts on the subject of death by poisoning. It was a subject that required very careful and elaborate investigation. He quite agreed with Dr. Balfour that a great proportion of the deaths in Ireland from intemperance happened amongst old people, that was to say over 50. What Mr. Humphreys said in regard to the decline of violent deaths was quite true, and he was glad of it, as they must all be, because it did seem a cruel waste of life that those who were engaged in the most useful occupations should have their lives sacrificed in the way they did. The falling off in the number of deaths had no doubt arisen from several circumstances, and he was bound to say that many of these causes were the result of legislation. The effect of the Factory Act of 1861, which required that in workshops and mills all machinery should be protected, was noticeable in the following year, and had been seen ever since. The same could be said of one or two other Acts. Mr. Walford concluded by thanking Mr. Hepple Hall for his suggestions about Michigan, although he was still under the impression, from what he had seen in passing through it on several occasions, that it was much more of an agricultural State now than it had been in earlier periods, and it probably was these earlier periods which Mr. Hall had in his mind. He had given the statistics of America generally, taking the country as a whole, not having detailed returns, but having the statistics of Michigan in detail, he had hoped he was on safe ground.

The ENGLISH STATIONS *in the* HILL REGIONS *of* INDIA: *their* VALUE *and* IMPORTANCE, *with some* STATISTICS *of their* PRODUCTS *and* TRADE.

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[Read before the Statistical Society, 21st June, 1881.]

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I.—*Early History of Hill Settlements.*

To the north of India rise the high walls of the Himalayas and their kindred ranges, forming the bounds of high and central Asia. From this northern line runs on the west a series of mountains through the peninsula of India, constituting its backbone, and lately familiar to us from the gold deposits in the south.

It is with the northern, the Himalayan ranges, we shall now chiefly deal. Within these we have territories which form a contrast to our main Indian empire in the great river-basins, for whereas these latter are hot, unhealthy, and hurtful to English constitutions, in the hills we have cool and cold lands, with our own climates, our own fruits ripening, and children of our own blood thriving.

From the burning plains eager eyes have turned to the snow-clad hills from the early times of English empire, and our statesmen have looked forward with hope to the day when the Himalayan regions should be occupied by our people. It has been the yearning for health and for shelter from the sweltering hot seasons of Bengal, which have most moved these men, but some have thought that military colonies should be there placed, in which our men could be stationed. There are records that Clive, Warren

Hastings, Wellington, Munro, Bentinck, Metcalfe, Ellenborough, Dalhousie, Malcolm, Canning, and the Laurences, amongst others, have favoured the occupation of the hills.*

The first practical step was taken by Lord William Bentinck in 1819, in authorising the establishment of Simla, and from that time the stations have gradually increased in number, the foundation of Darjeeling in 1828 being a marked step in opening a station for Bengal.

These hill-tops in the northern and southern ranges, early sought by the sportsmen, were then camped on by men weary of heat and fever. They were first recognised as sanitaria for the sick English officers and soldiers, and as such they are by many still regarded. Places of rest became places of pleasure, and though workers went up to the hills to labour harder in the healthier atmosphere, yet many of the stations became watering places, and this aspect of their existence has prevented some from more seriously regarding them. The fact too that the wives and children of many were sent up there from the plains for safety did not weaken such impressions.

Their natural advantages with regard to health made themselves felt, and the hills became regular summer resorts of the chief administrators. The jealousy of the presidential cities, although it opposed such a diversion, could not resist it, and Calcutta, Bombay, and Madras had to share the seats of government with Simla, Darjeeling, Ootacamund, and Mahableshwar.

The growth of the hill towns went on, but was very slow, for the favour shown to them by statesmen was counteracted by the persistent misrepresentations of the presidency towns. A concurrence of circumstances about a quarter of a century ago gave, however, at length, stability and consistency to the system of hill occupation, although that has by no means received the development of which it is capable, and which has even been recognised as necessary by authority.

II.—*Description of Hill Districts and Towns in the Northern or Tea Regions.*

The following is a list of the chief hill stations, exclusive of Assam, Burmah, and Kangra:—

Darjeeling.

Jelapahar
Gnadenburg.
Hope Town.
Kursion.
Leebong.

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* Hyde Clarke, English Settlement, "Society of Arts Journal," 19th May, 1858, p. 423.

CHIRRA POONJEE—Shillong.

SIMLA.
Boileaugunj. | Kussowlee.
Koteghur. | Sanawur.
Juttogh. | Dugshaie.
Soobathoo.

DEHRAH DHOON.
Landour. | Woodstock.
Mussoorie.

ALMORAH.
Hawnlbagh. | Nynee Tal.
Bheen Tal.

MURREE.
Dalhousie. | Dhurrumsala.
Budarodeen. | Abbotabad.

ABOO—Erinpoora.

OOTAKAMUND.
Coonoor. | Kotageri.

There are, however, several districts not in the above list of popular sanitaria. Even Burmah has its healthy hills, in which is Nattoung Station, formed in 1869, 7,000 feet above the sea level, with European climate and productions. Allaumyo was likewise surveyed as a sanitarium for Thyetmyo.

Assam is a district acquired of late years, in which the establishment of the tea cultivation has brought it under European superintendence and influence. In this remote country the Assam Tea Company and many private individuals have founded tea plantations. Many parts of Assam are unhealthy, but there is the choice of healthy sites; many formerly unhealthy have been rendered healthy by clearances for tea planting, and as there is abundance of new land and sufficient cheap labour, new factories are springing up, houses with galvanized iron roofs are raised, and steamboats are run on the Burrampooter. In these villages and tea stations many English residents are to be found, and there is ample scope for enterprise. Besides tea, silk, sugar, rum, lac-dye, timber, and caoutchouc are articles of English trade.

Cachar, one of the divisions of Assam, produces tea of good quality. A company has been formed, called the Cachar Tea Company, and there are a score of other tea plantations. The war alone has stopped the influx of Europeans. The military duties are performed by hill natives, called Kookies.

The Durrung division of Assam has tea establishments, a lac-dye manufactory, and a military church.

In the Gowalparah division of Assam the English have engaged in the timber trade, and are working the forests of the uplands. Here, as in other parts of Assam, English schools are established.

Kamroop, or Gowhatty, has several English establishments for tea, timber, the manufacture of caoutchouc, lac-dye, and rum. There is a station of the American Baptist Mission. The troops are native, consisting of Assam light infantry, of which there are two regiments.

Throughout the hill stations it will be observed that the natives consist of tribes of distinct origin, and having no sympathy with the people of the plains. Some have been enrolled, and rendered considerable services during the mutiny. Thus they are induced to value the English alliance, and are trained up as good subjects.

Caoutchouc, it will be seen, is in this district a result of English enterprise, as are the products of the forests hitherto unutilised.

The Luckimpore or Debroghur division of Assam is one of the tea districts, and there are tea gardens at Chubwa, Dikkun, Myjaun, Disraalle, and other places. One of these companies or firms employs three English assistants. There is a church. Cotton is grown by the Nagas.

Nowgong, in Assam, is a tea and sugar district. There is an American Baptist mission station, Assam being one of the districts in which the American Baptist Society co-operates with us for the civilisation of the natives.

Seebsaugur is the great tea district of the Assam Company. They have here five tea gardens, and employ many English, including a civil engineer, a surgeon, and an accountant. The American missionaries have, besides chapels and schools, a girls' boarding school, and a printing press, from which is issued a monthly paper in Assamese.

The Golaughaut district of Seebsaugur includes tea gardens and sugar works.

Attached to the Assam government or commission is that of Sylhet. The productions of this district include coal, iron, limestone, timber, lac, caoutchouc, wax, honey, betel nuts, oranges, cassia, tea, and cotton. It will be observed that these are chiefly mineral and forest products, affording good scope for the application of capital and enterprise in obtaining the raw products and in preparing them for the market in the first manufactured state.

The Kahssia Hills rise precipitately from the plains of Sylhet (which is in no sense a hill country) on the one side, and after attaining a height of 6,200 feet, slope down by a gradual descent until they are lost, as it were, in the Brahmapootra river, on the other side. Between Sylhet on the River Surmuh or Gowhatty, we may estimate the breadth of the hill tract between 70 and 80 miles. More than fifty years ago the small Hill station of Chirrapoonjee was established on the very edge of the south face of the Kahssia Hills, at an elevation of about 4,000 feet above the level of the sea, and looking down upon Sylhet in the plains below. At very nearly the same epoch, a small hill station, called Nungklow, was formed on the Assam side, and looking down on the plains of Gowhatty and the River Brahmapootra from an elevation of about 5,000 feet.

Nungklow, however, never throve; access to it was exceedingly difficult, through a most unhealthy tract, and the station itself turned out to be not out of fever range.

The station of Chirrapoonjee succeeded better. The headquarters of a regiment of native infantry was fixed there; the chief civil authority in the Kahssia Hills had also his office there, and it became a mild sort of watering place for the civil functionaries of Eastern Bengal, and even now and again a stray traveller from Calcutta might be found there. But Chirrapoonjee had several disadvantages. It was healthier than Nungklow, but still not quite free from malarious fever, and dysentery would often be very prevalent and dangerous there; then its position was exceedingly confined; it was remote from the best peopled part of the hill region, and its climate is perhaps the wettest in the world. Chirraponjee was fast going out of favour, when in the year 1861 the magnificent plateau of Shillong was discovered. Shillong lies about 30 miles north of Chirrapoonjee; it is screened by a high range of hills from the excessive rainfall experienced in Chirrapoonjee, and situate in the very heart of the hills; it is also protected from the malarious emanations of the valley of Assam. An easy carriage road, about 60 miles long, connects it with Gowhatty, the chief port of the Brahmapootra. Shillong has its racecourse and its polo and cricket grounds, and the roads are so level as to allow of the employment of wheeled carriages. The country in its neighbourhood is gently undulating, and has very much the appearance of some parts of the Surrey or Cotswold Hills. Indeed the neighbourhood of Shillong is so practicable, that in several directions a man can ride 10 or 12 miles at a hand gallop without drawing rein. At the same time the landscape is by no means tame: it is well watered and well wooded with beautiful glens, mountain streams, and splendid waterfalls; among the latter, I may mention "The "Bishop's Fall," which plunges down a mountain gorge in one unbroken sheet of water to the depth of 410 feet. The soil of Shillong is not very good, but the potato is cultivated there with great success. Shillong has now been selected as the seat of Government for the province of Assam; it is also the headquarters of the military force on the north-east frontier. The climate is very equable; during the summer months the thermometer rarely marks above 82 degrees, nor falls in winter much below freezing point; I believe snow has never been known to fall on the Kahssia Hills. The establishment of Shillong has proved of the greatest value to the tea planters in Assam and Sylhet in a sanitary point of view, and strips the malarious localities in which they have to work of much of their terrors. They build themselves houses at Shillong in which their wives and families reside during the unhealthy season, and to which they can immediately repair when attacked by any illness. In short, Shillong is now to Assam pretty much what some of the mountain cities of South America are to the seaboard.*

Darjeeling is one of the most important places in connection with the English settlement of Bengal. Lying due north of Calcutta, with railway and steamboat communication, a small amount of enterprise will bring it within a few hours' reach of Calcutta. Its advantages were first discovered about the month of February, 1828, by Mr. J. W. Grant, of the Civil Service, at that time resident at Malda, and by Captain, afterwards Major-General G. W. A. Lloyd, who were employed in settling the boundary between Nepaul and Sikkim. These gentlemen represented the facts to the Governor General, Lord William Bentinck, in 1829, and that great man, it is said, never lost sight of the expediency of establishing on this tract of the Sikkim hills a station for the benefit of those whose health demanded relief from the heat of the Bengal plains. He directed Major Herbert, Deputy Surveyor General, to explore the site; and the results having been brought before the Court of Directors, they highly approved of the plan, and extended it with a view of its forming a depôt for the temporary reception of English recruits, and even as a permanent station for a European regiment. This undertaking likewise received the fostering care of Lord Auckland during his government, as also of the successive deputy governors of Bengal, and of the Governor General, Lord Canning, as well as his successors.

The situation of Darjeeling is in a spur of the Great Sinchal mountain, which itself rises nearly to a height of 9,000 feet, throwing out several spurs. One of these is Darjeeling, a hog-backed ridge, with a steep descent on its eastern side to the torrent of Rogno, and on the west and south-west declining in more gentle declivities, broken into knolls, and intersected by numerous streamlets, and forming a fine amphitheatre, extending from 2 to 3 miles, and dotted with villas, military establishments, the civil offices, the church, hotels, and other buildings. On other spurs are several neighbouring villages and hamlets, for Darjeeling has already become a small centre of colonisation. In the neighbourhood, nearer or further off, are Guadenburg, the German mission, Hope Town (an English settlement), Leebong (with gardens of the Leebong Company), Jelapahar, Tagoar (the tea plantations of Captain Masson), and Kursion.

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* The description of Shillong I owe to Colonel Hopkinson.

The great attraction of Darjeeling to visitors and tourists, and which brings many, is the noble view of Deodhunga, 29,002 feet high, of Kunchinginga, 28,176 feet high, and some of the highest peaks of the Himalayas, affording perhaps the grandest scenery in the world. Thus in the future of Darjeeling its situation as one of the chief places of resort by the Indian traveller will have great influence.

Darjeeling is a small place according to English notions, and is little more than a village, but is rapidly growing in importance. It has a church, Baptist and Roman Catholic chapels, nunnery, boarding and other schools for boys and girls, public library, masonic lodge, hospital, treasury, jail, hotels, and various shops. It is one of those places to which English children are sent for education, and there they get the rosy cheeks of old England. There are numerous residents for health occupying the villas. The military establishment consists of a hill corps, a body of English invalids, and cantonments are prepared for English infantry.

The industrial importance of Darjeeling is now recognised as the seat of tea and cinchona culture.

The neighbouring district, a part of Sikkim, now belongs to the English, and includes a population of 50,000, available for labouring purposes. The remaining district of Sikkim is dependent on England, and can be likewise occupied for settlement when the necessity arises.

The great value of the Darjeeling and Sikkim territory arises from its lying between Nepaul, Thibet, and Bhootan, on one of the natural routes to Central Asia, commanding the trade on the eastern frontier. The produce and exports from these districts include gold dust, iron, copper, lime, woods, tea, wax, ginger, catechu, cassia, coffee, cotton, hemp, gunny, rice, cardamones, oranges, potatoes, ghee, hides, horns, musk, wool, chowries, blankets, woollen cloths, and many other articles. The statistics of this trade, still undeveloped, are given further on to the latest returns.

As a political position, it commands the countries referred to, and prevents the Nepaulese from seizing Bhootan, which they are anxious to do, and whereby we should have those dangerous neighbours, the Goorkhas, now our allies, spread further along our frontier.

The hill of Parisnath in the Burdwan range, has been pointed to as suitable for a sanitarium south of the Ganges, but nothing serious has been attempted, nor is the elevation considerable.

Passing from Darjeeling, the range of the sub-Himalayas, containing some fine valleys and country available for settlements, is in the possession of the Nepaulese, and is for the time closed against us. We then come to a group of hill countries, including Kemaon or Almorah, the Dehrah Dhoon, and Simla.

Kemaon or Kumaon includes the districts of Kemaon or Almora, Gurhwal, and Nynee Tal. This country has attracted attention for its iron mines.

Almora has an English population as well as a native one. Here is a considerable establishment.

Hawulbagh, five miles distant, has however the chief residences, and here are the military cantonments. In the neighbourhood are tea plantations.

Gurhwal has many iron and other mines, but the produce is very small. The forests are under government supervision. At Paronee, in Gurhwal, are tea plantations.

Nynee Tal, in a romantic situation, by the side of a lake among the hills, is the favourite sanitarium in Kemaon. It has been a city of refuge during the troubles, but last year suffered severely by a landslip.

Bheen Tal is a village with tea plantations. In this district are iron works.

Dehrah or Deyrah Dhoon is a district about the size of an English shire. The town is delightfully situated, and is on a good route for trade. The neighbouring country is fertile, but where uncleared, most unhealthy from rank vegetation. In this district an experiment was made of colonisation by invalid soldiers and Portuguese Hindoos, and as it failed as a matter of course, as all military colonies have, and as the Portuguese of India are sure to fail, it is now set up as a stock argument against English settlement in India. The spread of the tea cultivation alone is answer enough to the Dhoon experiment. The town has a church, American Presbyterian and Roman Catholic church, and a variety of public establishments, among which is a station of the great trigonometrical survey of India. The forests of the Dhoon are of importance, and are under government superintendence.

Landour, near Dehrah, is a sanitary station, regularly frequented by the Meerut officers, and forms a considerable town, with military and civil establishments. There are a church and Roman Catholic chapel.

At the village of Woodstock is a Protestant girls' boarding school.

Mussoorie is so close to Landour, that the towns or villages are almost connected by the rambling villas; it has a church, and there are a Roman Catholic chapel and a very well conducted Roman Catholic school, or rather college for boys. A nunnery is another Roman Catholic establishment, with a boarding school attached. It will be observed, in surveying the hill towns, that the Roman Catholic missionary authorities have very skilfully selected them for occupation by churches, nunneries, and boarding schools, and as the cost is paid by the pupils from the plains, these become reproductive establishments. At Mussoorie there is a superior church school for boys, and there is a common girls' school, besides two boarding schools for young ladies. Dancing and music are taught in this remote region. Beer is brewed from native barley at this place, and forms a new and permanent branch of trade, which has been mentioned by Sir Richard Temple with praise.

Kenilworth and Clarkeville are places at Mussoorie.

Simla is at present the most important of the hill stations, and is so far metropolitan, that it has been the frequent residence of governor-generals, lieutenant governors, commanders-in-chief, and high authorities. Like most of these sanitaria, it is perched on a narrow ridge of mountains, with dwellings scattered on every available spot, often of narrow area. It was only in 1819 that the first English dwelling was erected here by Lieutenant Ross, but by 1841 it had become a regular English station, and has since much increased. Sometimes as many as 20,000 persons, native and Europeans, are temporarily assembled when the governor-general takes up his abode in the town. In Simla and the neighbouring hill stations are to be found many residences. Christchurch is a costly edifice, with an organ. There is a Baptist chapel. There are boarding schools for boys and girls, and five district schools of the Church Missionary Society. The local governor, called Deputy Commissioner, is provided with numerous functionaries and establishments. This is one of the few places in India which has a municipality, and the only one which has an English municipality, an institution which it is to be hoped will rapidly extend throughout India. There are an observatory, large dispensary, bank, library, hotels, assembly rooms, type, copper-plate, and lithographic printing house, and many shops.

Boileaugunj is a suburb of Simla, named after a distinguished engineer officer, General Boileau.

Juttogh is the military station near Simla, generally occupied by a Goorkha regiment.

Kotgur is a town 50 miles north of Simla. Here are a church mission, a boys' and girls' school of the Church Missionary Society, a school of industry, and station of the Moravian Missionary Society. In the districts are five boys' schools. The Moravian

Missionaries have chosen this as a temporary residence, in order to penetrate the interior from this point, and establish missions among the Tartars and Mongols. The tea cultivation has been successfully introduced in this district.

Chikrata or Pokra, on the road between Simla and Mussoorie. about 38 miles from the latter, has within a few years become a favourite place. Barracks and an invalid depôt have been built.

As far distant as 166 miles from Simla is Chini, on the Tibetan frontier, which in 1869 was a favourite resort of Lord and Lady Dalhousie.

Kussowlee, in the Simla district, is a sanitary station, having large establishments, but suffering from the want of water, which has to be brought from a mile and a quarter distance. The buildings are distributed around a hill of five miles in circuit. There are a church and Roman catholic chapel. Here is the residence of another commissioner. A brewery has been successfully established here likewise.

Sanawur, near Kussowlee, is the seat of a most interesting establishment, the Lawrence Military Asylum. This was founded by that great man, Sir Henry Lawrence, and is one of the munificent foundations of that noble family. As early as 1856 it contained 200 boys and 200 girls, orphans of English soldiers, who, among other employments, are taught printing, bookbinding, and electrotelegraphy. After the mutiny it was much enlarged, and it is likewise the military normal school for training schoolmasters for the Bengal army.

Dugshaie, in the same region, is a station in the Sirmoor territory, having an Established church, and a Roman Catholic church. In the district a hill regiment is raised. The place is 16 miles from Simla.

Soobathoo, another of these towns, is by some preferred to Simla. The population is chiefly composed of native immigrants and refugees from the hill States. There are a church, American Presbyterian chapel, and a Roman Catholic chapel. It is a sanitarium, and one of the most healthy stations for troops. In the neighbouring valleys and steep mountain sides cultivation is industriously carried on: the produce being rice, maize, wheat, barley, millet, ginger, cotton, opium, tobacco, oil seeds, red pepper, hemp, vegetables, apricots, peaches, walnuts, apples, wild pears, raspberries, strawberries, and melons, being the varied growth of several climates in close neighbourhood.

The great group of what may be called for the purpose the Simla military towns, is among those which afford the smallest resources for agricultural operations or other enterprise, but the trade consequent on the provision of troops and the gradual development of industry, will hereafter invite many settlers.

We now come to scattered towns of much later establishment, being the military sanitaria more lately formed by the Lawrences and other administrators on the hills adjoining our most western territories in India.

Murree is on a hill between the rivers Indus and Jhelum, in the Punjaub, established in 1851. Here was long the seat of the great governor, Sir James Lawrence, one of the saviours of the empire. It has already a large population, and includes a military depôt, church, the revenue survey department, and many villas.

Dalhousie is a sanitarium and hill station in Punjaub, in the Chumba hills, 120 miles north-east from Lahore, founded still later for the Sealkote and Lahore divisions, and named in honour of the late distinguished governor-general.

Dhurrumsala is another Punjaub military sanitarium with church and small barracks. Here the tea cultivation has been introduced.

Kyelang is a Moravian missionary station in the same province.

The Kemgra and Kooloo districts are of importance for the quality of their tea and their possible mineral resources, rather than for the extent of their present occupation by English settlers.

Budorodeen, a small military sanitarium, was founded in the Marquis of Dalhousie's government in 1853, and is between Bunnoo and Dera Ismael Khan.

Abbotabad, named after the distinguished James Abbott, is a military station 22 miles north of Hurripore.

Ghizree is a sanitarium newly established by the Bengal Government in Sind, for the Kurrachee brigade of the division of its army occupying that country.

Our next district is Aboo or Mount Aboo, in the territory of Serohee, in Rajapootama, connected with the Arawulli range, and being the only station of the kind in the ranges of Central India, which it is supposed will, on survey, be found to present many suitable sites. It is a new town, and is a post of the agent for the States of Rajapootana, and has a church and many English invalid residents. Here is another foundation of Sir Henry Lawrence, the Aboo Lawrence School for thirty boys and seventy girls of English soldiers. It may not be forgotten that a special appeal was made for the endowment of the Lawrence schools, as a memorial of that eminent man Sir Henry Lawrence and of the family.

Erinpoora is the military station of Aboo.

III.—*Description of Hill Districts and Towns in the Southern Coffee and Gold Regions.*

We now proceed further south, to the Bombay Presidency. Along the shore of that presidency the chain of the Western Ghauts rises like a wall parallel to the sea and supports the several table lands of the Dekkan.

Thus the inhabitants of Bombay, by ascending these hills, which the Great Indian Peninsular Railway now facilitates, obtain a refuge during the violent heats. Poona, on that railway, has long been a favourite civil and military station, and in its neighbourhood various establishments have been formed. These however have no industrial value.

Mahabuleshwar is a small town on a fertile range of the Western Ghauts, in the Bombay Presidency, but having heavy rains in the monsoons. It was founded by Sir John Malcolm in 1828. It has a church, library, hotel, bazaar, and invalid garrison. Malcolmpeth is a neighbouring village.

The district of the Neilgherries is a southern resort for the Madras and Bombay authorities. Ootacamund is its chief town, and is in the Coimbatore district. It was founded in 1822. It has a church, public gardens, and meteorological observatory. On account of its proximity to the Wynaad and Mysore coffee and gold regions it is acquiring more importance.

Bishopsdown is a place near the town, where there is a cantonment for sick soldiers.

Koonoor is a small station in the Neilgherries, with many English villas, an hotel, and bazaar. The depôt is called Wellington.

Kotageri is a neighbouring sanitarium.

Karty is the seat of a German mission in these hills.

The cinchona, tea, and coffee products of the district are referred to in detail elsewhere.

As already stated, coffee and gold exercise the same influence in the south, as tea and cinchona do in the northern regions. Whatever may be the profitable results of gold operations to the adventurers, they will at all events attract capital to the district, and demand attention in any review.

It appears to the public that the discovery of gold in India is indeed one of the most remarkable events in this age, which has seen so many events materially affecting the destinies of the human race. The rediscovery of gold in California and its discovery in Australia, greatly as they acted on the enterprise of the world, yet as the operations in connection with them took place in countries thinly peopled, they did not have the direct influence which must result from the development of gold mining amidst populations numbered by hundreds of millions.

The gold of India is traditional, and yet, in our days, gold had become scarce in those regions. In Southern India there can be little doubt that the known sites in the Wynaad and Mysore are only indications of larger formations.

It is difficult in any reasonable compass, to give a fair idea of the extent of the gold regions of India, or to effect this by either historical or topographical treatment. If at the present moment the Wynaad regions concentrate attention on them, they cannot be regarded in any general consideration as entitled to sole notice.

Other districts in ancient times were better known, and there are mineral formations in outlying regions which, on examination, may prove to be productive, and which may give unexpected value to countries now regarded as undeserving of attention.

On this occasion we must direct our notice to Wynaad and the neighbouring lands. These must certainly be considered as an old and recognised gold district, at whatever opinion we may have arrived as to its practical utility. The old workings attest its former and continuous occupation for mining, while the petty operations of the native gold seekers preserve the tradition, rather than prove the extent or importance of the formations.

More than once, in later times, attention has been directed to the possibility of turning these indications to account, and that chiefly in dependence on the historical indications. The earliest historical evidence, however, that we as yet possess is that brought forward by the eminent authority on the archæology of India, Dr. Burnell, quoted by Mr. Eastwick and Mr. Brough Smyth. In his note on the great Temple of Shiva, at Tanjore, he is of opinion that it could only be by gold treasures that the rajahs of Southern India could raise in the eleventh century the great temples to Shiva, and in the twelfth and thirteenth centuries those to Vishnu. Were there nothing else to support it, this conjecture would fall to the ground, because the temples were not really constructed with gold, but with labour, like the pyramids of Egypt, unless labour or food had been imported from without and paid for with gold. Any gold expended within the country would, under most circumstances, remain within it, and be again collected into the treasury.

Dr. Burnell, however, brings direct proof as to the abundance of gold, by his successful decipherment of a remarkable inscription in the Tanjore temple. Dr. Burnell is thus enabled to state that in the eleventh century gold was still the most common precious metal in India, and stupendous quantities of it are mentioned. He, too, considers that this gold was obtained from mines, and that the

Moslem invasions interrupted their workings. This is the opinion which appears best to account for the facts known to us.

Mr. Edward B. Eastwick, with his accustomed power of research in oriental history, has treated of the historical data. He records that, in 1123, Alláhu'd-din took the city of Deogarh and ransacked the citadel, receiving, besides 175 lbs. of pearls, 50 lbs. of diamonds, and 25,000 lbs. of silver, as much as 15,000 lbs. of gold. Although this is supposed to be an exaggeration, there is no reason to deal with it as other than the actual conditions of the treaty made and recorded, though the value of the gold would be some 600,000*l.* sterling. Such a treasure is by no means unexampled in history. Indeed, the accumulation of treasure was as great a political end as was the increase of territory, and each conqueror possessed himself of the accumulated stores of his victims.

Tippoo Sultan possessed great quantities of gold. In Maxwell's "Life of Wellington" it is stated that he was to pay to Lord Cornwallis, under treaty, three crores and thirty lakhs of rupees in gold mohurs, pagodas, and bullion, equal to about 3,300,000*l.* On one occasion, Tippoo sent thirty-eight camel loads of money to Scindiah, to buy him over as an ally.

By the estimate of treasure and property taken at Seringapatam in 1799, it is clear that Tippoo had been able to make fresh accumulations of specie; there were 16,740,350 star pagodas; his throne had at least 30,000*l.* worth of gold in it; besides this, he had paid large sums abroad for war supplies and political purposes.

Whether this gold was obtained from the mines of Southern India is uncertain, though the commissioners in 1833 state, "it is "pretty certain that Tippoo attempted to make them a source of "revenue during his possession of the country," which was included in his dominions. Indeed, all the English inquiries turned on this point of the known existence of the metal.

In 1792 and 1793, a joint commission from Bengal and Bombay was appointed to examine the state and condition of the province of Malabar. The commissioners refer, briefly, to the occurrence of gold in treating of the subject of the royalties claimed by the rajahs, which is stated to be on "all gold ore," and also of "compositious of gold," which were found in the Nilambur district.

In 1793, Mr. Duncan, Governor of Bombay, formed a strong opinion of the value of the mines, and took some steps to ascertain the extent of them. In 1802-03, the auriferous rocks of the Nilambur valley are again mentioned, and in 1813 a work was published by Dr. Whitelow Aimslie, in which an account was given of the localities where gold is found in India. He says, "Gold dust "has been found in the bed of the Godàveri, and in Malabar in the "bed of the river, which passes Nilambur in Irnaad district. It

" has, moreover, been procured in very small quantities in Wynaad, " in the Arcot district, and in the sand of Beypore river, near " Calicut. Though the sources are evidently numerous from which " this valuable metal can be obtained in the Indian peninsula, it " would seem, from the little interest they have hitherto excited, " that none of them promised to be very productive."

Before the year 1831, Mr. William Sheffield, the principal collector in Malabar, had been buying gold for the government, and on the 10th January, 1831, he sent in a report on the several localities where gold was known to be found, and on the methods of mining employed by the natives. Mr. Sheffield made such an impression, that Lieutenant W. Nicholson, 49th Regiment, N.I., was appointed by the Government to search for gold " in the " mountains on the Malabar coast."

It may be mentioned that Lieutenant Balfour, R.A. (now General Sir G. Balfour, F.S.S.), being at Colar in 1835, noticed that his servants washed gold there. Every resident told him of gold. Such facts were of constant observation.

Lieutenant Nicholson carried on a course of explorations in 1831 and 1832, and we are now able to recognise that he showed great ability, and that he achieved a certain success. On the 25th of May, 1833, the Right Honourable the Governor in Council dispensed with the services of Lieutenant Nicholson, and appears to have abandoned all hope.

It was not until 1868 that the matter of gold working was seriously treated, and then by Australians who had settled in Wynaad. In July of that year, Mr. H. S. Sterne, who had six years' experience as a gold digger, applied to the Government for leave to prospect for gold and other metals on government land in the Madras Presidency. Permission being granted, he prospected in various places, but with what success is not known.

Somewhere about the same time, Mr. G. E. Withers began to prospect, and became convinced by inspection that the reefs were auriferous and deserving of attention. Owing to his labour and the enterprise of Mr. T. W. Minchin, of Hamslade, near Devala, machinery was erected for reducing the quartz found in the veins of the Skull Reef and reefs within the area of the company, which was called the Wynaad Prospecting Company.

From this period, applications have been continued until now for permission from the Government to work gold on private estates or on public land. These operations attracted much attention, and culminated in what appeared to be, in 1876, a settled industry of gold working, but the trials proved unsatisfactory, and from one cause or another, great discouragement prevailed.

By this time the Government of India had obtained the services of Mr. R. Brough Smyth, then in the employment of the Government of Victoria.

Some very good descriptions of the Wynaad and the Mysore districts have been published in the memoirs accompanying the Geological Survey of India, particularly the report and map of Mr. King, in May, 1875. That of Mr. Ball is also of geological value. Mr. Brough Smyth, in his report, has entered into valuable local details. Mr. Oliver Pegler has given a general mineralogical sketch of much interest, which he has confirmed by subsequent explorations.

A map of the gold regions, by Mr. James Wyld, the geographer to the Queen, is the best record we have as yet of the general conditions and the various discoveries.

Mr. Oliver Pegler says that the range of mountains of the Wynaad is of ancient formation, belonging to the paleozoic period, more especially to that of the Silurian formation, a matter of much interest. The highest peaks, as in the neighbourhood of Ootacamund, are formed of hard, dense, and crystalline rocks of the metamorphic series of granites, syenites, &c. The more fissile varieties are also here present, and being softer, have yielded to the disintegration and denudation of time, and have formed the valleys and dells adjacent to the peaks.

These softer rocks are of a much higher colour than the harder granite and crystalline formations, and give a red and brown appearance to many portions of the surface of the country. The average height ranges from 7,400 to 8,400 feet, and the whole of the formations are impregnated with black magnetic oxide of iron, which after a shower of rain appears as black sand on surfaces where the water has run over in streams. This is particularly noticeable along the road sides.

The crystalline rocks continue for a considerable distance down the slopes towards the Wynaad country, becoming lighter in colour, coarser in texture, but more laminated and fissile in structure, changing into the gneissic and more laminated varieties of metamorphic rocks.

The whole surface of the ground, writes Mr. Pegler, is contorted, upheaved, and thrown about, forming upright ridges, valleys, peaks, rounded hills, and depressed surfaces. It is most difficult to determine the true strike of the strata generally. The whole country is ramified with a run of gold quartz veins, which are true reefs. The general run of these reefs is parallel, the direction of strike, according to Mr. Pegler, being almost generally, in the Wynaad, north and south, a few degrees west of north, and east of south, but the exceptions are important.

The dip of the reefs is very low, as seen at surface, and most generally to the east, varying, when cropping out on the brow of the hills, especially when heavily developed, from almost horizontality to from 20° to 39°, and increasing in dip in lower grounds. These reefs, which are met with in every part of the country, are often of great breadth, up to 15 feet, 20 feet, and 30 feet of thickness; are composed of white crystalline, compact quartz, identical in every respect with the reef quartz of Russia, Australia, California, Nevada, or any other known gold bearing country.

The Indian mines however vary much from each other. Some are rich pyrites, others cold white quartz, others again are dark in colour. The circumjacent rocks, it is to be noted, are also auriferous.

Accessibility may be regarded in connection with the other conditions. Within 4 miles of some of the Mysore mines, is a railway station in union with the main Indian system.*

IV.—*Progress of the Hill Question in India and in Parliament.*

My own attention was directed to the hill question specially, as far back as 1849, when I took part with Mr. Francis Whishaw† in reporting to the Honourable East India Company on the telegraph system for India. All plans had naturally taken Calcutta as the essential centre of the telegraph chain; but it appeared to me that Simla could as well be constituted one of the centres, and thus India would be in communication with the Governor-General, whether at Calcutta or Simla. I also saw the importance of Darjeeling. By providing for connection with the hill stations, at a comparatively small expense of a few thousand pounds, the result really was to remove them from the class of temporary summer camps to that of stations of regular occupation, and it became impossible to affirm that communications could not be made with or from the Governor-General and the Governors in the hills.

It was evident to me, from my long acquaintance with the Indian railway system, that the hill stations could only be developed by being connected as well with the railway system as with the telegraph system. Sir Macdonald Stephenson had proposed a Northern Bengal railway as one of the great feeders of the East Indian Railway, and in 1857 I became associated with him in the extension of a line by that route to Darjeeling, and I also took up the question of branch railways to Simla and other hills.‡

Thus thrown into direct relations with the hill regions, it appeared to me that the railway question could best be promoted by bringing before parliament and the public in England and India the whole hill question, which before that had been confined to India and to the despatches, memoranda, and pamphlets of individuals, producing no concerted action, unhappily remote from inspection. Then, as now, the question was released from the narrow trammels of purely Indian considerations, and treated in relation to its bearing upon England as well as India.

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* For the Pulneys and Southern Hill capabilities, I refer to the observations in the discussion of Sir W. Rose Robinson.

† "Indian Colonisation," by Hyde Clarke, p. 5.

‡ In 1857 I published "Colonisation, Defence, and Railways in our Indian "Empire." (London: Weale.)

By using the terms "colonisation" and "settlement," I threw down the gauntlet and provoked a host of opponents, and thereby created a discussion, in which the home and Indian press took part. In 1858, through the exertions of the late William Ewart, M.P., I obtained a committee of the House of Commons, which sat in two sessions, and published valuable reports, which remain of authority to this day. From that time a public opinion has existed which has contributed to the general progress of the policy.

The most effective branch of this progress has been the successful establishment of tea cultivation, afterwards of cinchona cultivation. Thus there is no doubt now that there are industrial capabilities in the hills, and the development of these capabilities will slowly promote the advance of these regions, irrespective of government patronage on which it appeared solely to depend.

Thus on a subject which is still unfamiliar, we are in a position to consider practical results, and thereby to arrive at a determination as to the future with greater confidence, and this is what is now offered for the attention of the Statistical Society. It is because the subject is of importance and deserving of inquiry, and because the statistics are not well defined, that it appeared to me proper to bring it before the Society. One branch of our labour is to deal with figures, when furnished in abundance, and from them to deduce results. From positive facts we are able to arrive at positive conclusions. This, however, is not the final purpose in statistics any more than in any other branch of science. We, too, have the opportunity of research in the examination of what has remained unexplored, and in showing how from the uncertain, the certain is to be reached, by labour and by care. When a want has been determined and recognised, then comes the demand for supplying it by the application of public or individual exertion.

V.—*Statistics: Tea, Cinchona; Horses, Cattle, Sheep, and Goats; Wool; Timber; Beer.*

The statistics for our purpose have to be picked out from the public records of India, and as these have not been directed to our special end, they are scanty and imperfect. They serve to illustrate but dimly the main facts, but the statement of the case may stimulate other inquirers to pursue more successfully the investigation. If there are healthy regions within our empire in which English industry can be applied, and to which our own people can repair, then the time of the Society can fairly be devoted to the consideration. It is not, however, narrowed to such points, for there are connected with it questions of our trade with Central Asia, Thibet, and China; of the defence of our frontier, and the protection of the internal peace of our Indian empire, all of which can be promoted by the due development of our interests in the hill regions.

Looking at this practical point of view, the tea cultivation is convenient to take as that most familiar to us. The great extension of tea cultivation in Assam is well known; that in the hills is less so; but it is yearly attracting more attention. One of the most remarkable circumstances in that great and praiseworthy undertaking of the introduction into India of the cultivation and manufacture of tea was the discovery that the tea-tree was already growing in our territories; and the subsequent knowledge, not only that Chinese tea was produced in India of superior quality, but that the Indian tea grown from the Indian plant, having more remarkable properties in the end has obtained for itself a distinct rank in our market.

With Assam we are not now concerned, but with the higher hills. At Darjeeling and other stations were to be found English residents who could supply capital and intelligence, and having sufficient superintendents on the spot, and some native labour. The late Dr. Archibald Campbell, to whom the hill stations in general, and Darjeeling in particular, of which he was long Superintendent, owe so deep a debt of gratitude, bestowed his energy on the tea experiments, and on his return home gave it undiminished care.*

Thus Darjeeling has become a respectable tea centre, and Kangra, Kumaon, and many other districts are names as familiar in London as Chinese names for qualities of tea have long been.

The following gives a recent view, which I have drawn from authentic sources, of the condition of the tea industry:—

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* See his papers and discussions on tea; on trade with the interior; on cotton; on tussah; in our Indian Section of the Society of Arts.

Tea.

[Founded on "Miscellaneous Statistics, Calcutta, 1880," p. 2.]

	Number of Plantations.			
	1875-76.	1876-77.	1877-78.	1878.
Darjeeling	124	144	163	173
Kumaon and Gurhwal	14	23	—	—
Dehra Dhoon	13	16	—	—
Simla	1	1	1	1
Kangra, including natives	850	910	1,041	1,173
Neilgherrys	38	44	53	69
	Acres under Tea.			
Darjeeling	22,450	25,846	29,405	29,911
Kumaon and Gurhwal	2,224	2,235	2,300	—
Dehra Dhoon	2,139	2,474	3,080	3,372
Simla	120	120	100	100
Kangra	4,126	4,611	6,661	7,751
Neilgherrys	2,392	3,142	3,269	4,191
Total Hills	33,451	38,428	44,815	47,700 ?
Total Assam	87,307	102,711	140,146	147,840
	Yield in lbs.			
Darjeeling	4,616,358	4,211,142	5,284,049	7,725,206
Kumaon and Gurhwal	283,070	265,951	333,747	—
Dehra Dhoon	348,112	433,212	578,373	728,097
Simla	8,170	7,484	3,000	3,000
Kangra	671,779	723,088	855,420	691,588
Neilgherrys	220,070	235,769	226,389	615,406
Total Hills	6,147,559	5,876,646	7,280,978	9,810,000?
Total Assam	20,028,890	23,493,099	28,352,298	28,509,548

The hill stations have great advantages for sending down their teas to stations on the plains; and though the Indian tea trade may be subjected to great vicissitudes, it can scarcely fail to be a permanent hill occupation. If the large companies should not succeed, tea gardens will still be maintained by local enterprise.

The value of Indian tea exported to the interior was:—1878-79, 43,000*l.*; 1879-80, 16,000*l.* The quantities were:—1878-79, 582,000 lbs.; 1879-80, 284,000 lbs. The export was chiefly to Afghanistan.

The capital invested in Indian tea cultivation in Assam and the Hills, is estimated at nearly 15 millions sterling, but this most probably includes the prices paid for the properties, and really represents the interest at stake.

The tea export trade, otherwise than to England, is likewise an important consideration:—

	America.	Australia.	Continent.
	lbs.	lbs.	lbs.
1874–75	17,200,000	13,700,000	6,400,000
'75–76	13,200,000	16,800,000	10,100,000
'76–77	13,300,000	16,800,000	6,000,000
'77–78	19,000,000	16,200,000	Nil
'78–79	12,500,000	17,300,000	1,100,000
'79–80	19,700,000	18,600,000	2,800,000
'80–81	24,000,000	24,700,000	6,700,000

The American and Australian trade is growing, but competition is threatened from tea growing in the United States and New Zealand.

The visit to Darjeeling and the Himalayas of Sir W. J. Hooker has borne good fruits for those regions, as from Kew Gardens he has been able to promote the encouragement of new products in India. Of these cinchona, chiefly through the introduction of Dr. T. Anderson, has well succeeded in Darjeeling. Ipecacuanha, to which much attention has been directed, as a drug of primary necessity for India, has not as yet achieved the same success. Cinchona has proved a benefit to India, and a success for the hills. As yet it is still largely cultivated under the direction of Government, but private enterprise is becoming more largely engaged.

It will be of interest to the Society to observe how far Government aid has been successfully applied in the introduction of new industries, which have afterwards been left to private enterprise, and many have become self-supporting.

There can be no doubt that tea and cinchona will promote the application of enterprise to other products, for the hills have the advantage not only of moderate, of moist, and of cold climates, but of a great range reaching down to the hot jungles at their feet.

Cinchona Cultivation. Darjeeling and Sikkim Plantations.

[Founded on "Miscellaneous Statistics, Calcutta, 1880," p. 21.]

1874–75	39,046 lbs.
'75–76	211,931 ,,
'76–77	207,781 ,,
'77–78	344,225 ,,
'78–79	261,659 ,,

Neilgherry Plantations.

1874–75	57,250 lbs.
'75–76	65,170 ,,
'76–77	103,341 ,,
'77–78	138,818 ,,
'78–79	114,320 ,,

The total produce of the Darjeeling plantations appears to be:—

1879.	lbs.
Government plantations	261,659
Private ,,	120,000
	381,659

	Acres.
Government plantations	2,174
Private ,,	1,800
	3,974

The Neilgherrys have successfully engaged in coffee growing, and produce 3,500,000 lbs. yearly.

The foregoing are results obtained from a few products, but the forest, animal, vegetable, and mineral resources of the hills are great when attention is given to them.

In the jungle belt of the Terai at the foot of the hills is rich land, of which the Darjeeling portion is being reclaimed, and which will yield cotton and any tropical products. The enterprise of the hillmen is not indeed to be confined to their scanty soil, but can be applied to the wide breadth of land below them.

Sir Richard Temple very properly directs attention to the hides of the hills and to tanning, he might have added skin-dressing and food. These are trades particularly suited to Englishmen, and for which there is abundant variety of materials, as well in what is obtained from the interior as in what is to be found in the forests, and might be derived at a future time from the hills, as attention is devoted to these departments of raw material and of production.

Materials for tanning and dyeing are available in many a hill valley, and the Government could usefully direct encouragement to the production of harness and artillery leather in the hills, as they have of late to the promotion of leather manufacturing in the plains.

The total land imports of drysaltery were:—in 1878-79 and 1879-80, dyes, 72,000*l.* and 78,000*l.*; gums, 64,000*l.* and 113,000*l.*

There are also many branches of the hair trade that can be practised with promise, and feathers also can be utilised.

The breeding of cattle, and the manufacture of dairy produce suitable for distant conveyance, are further occupations particularly suitable to our people. From various circumstances the supply of milk products in the plains is restricted, and there would be markets among Englishmen and natives for all that could be obtained from the hills. The establishment of factories for compressed milk, like the Swiss milk, is deserving of notice. Naturally, cheese of cows, goats, and sheep, clotted cream (the kaimak of the Turks), butter, and many other articles are worthy of notice. As railways and tramways descend from the hills so will preparation be made for refrigeration.

My object is mainly to show that there are pursuits available for our countrymen, or in which they can improve the native methods.

The imports of horses, cattle, &c., from the hill States may be thus represented:—

Number of	1877-78.	1878-79.
Horses Imported—		
Kashmere	47	152
Ladakh	360	155
Thibet	155	168
Nepaul	71	480
Bhutan	—	1,000
Cattle—		
Kashmere	704	854
Ladakh	—	3
Thibet	6	47
Nepaul	—	4,100
Sikkim	—	763
Bhutan	—	570
Sheep and Goats—		
Kashmere	13,233	15,484
Ladakh	1,934	241
Thibet	2,600	3,800
Nepaul	—	26,000
Sikkim	—	349
Bhutan	—	820

The total value of animals imported by land into India was as follows:—1878-79, 512,000*l.*; 1879-80, 373,000*l.*

Wool is much neglected, but sheep and goat's wool, shawl wool, and mohair (tiftik) can be raised. Kashmere is the well-known seat of the shawl manufacture. As Sir Richard Temple says, when detailing the resources of India, the wool trade ought to be in the hands of the English.

	1877-78.	1878-79.
Wool Imported—	£	£
Kashmere	1,800	1,200
Thibet	65,000	121,000
Ladakh	500	2,900
Nepaul	—	650

The total land importations for India of wool were:—1878-79, 273,000*l.*; 1879-80, 228,000*l.*

The hills when once under adequate care, will have many facilities for carrying on various industrial operations. Many materials they possess of very fine quality, and the water power is abundant. Carpets and shawls are as it were material manufactures.

	1878-79.	1879-80.
	£	£
Blankets, carpets, &c.	48,000	50,000
Shawls	181,000	86,000

With regard to the hill timber trade, it has natural capabilities, and there are many kinds of forest products to be turned to good account.

The following are particulars from the returns of timber imported into India:—

	1877-78.	1878-79.	1879-80.
Timber Imported—	£	£	£
Kashmere	123,848	105,733	110,000
Nepaul	—	79,000	143,000
Thibet	—	40	—

When we consider how deficient many parts of India are in timber, the present supply can only be considered an earnest of what is demanded. Much fuel is sent down, but no manufactures exist of sawn timber, furniture, joinery or turnery. The bad means of transport comes in here to discourage improvement.

While complaints are made of the denudation of the forests of India, there are many parts of the hills suitable for nothing else but tree growing.

There would doubtless be some sale for the fruits and preserves of temperate climates, many of which can be produced of finer flavour in the hills. The imports of fruits into India from Beloochistan and Afghanistan amount to 14,000*l.*, and the total imports of fruits and nuts into India by land, are from 140,000*l.* to 150,000*l.* yearly.

A noteworthy example of what may be done in the milder hills is the successful introduction of French grapes in Kashmere. The Neilgherrys are particularly favourable for the grape. Whenever wine growing receives attention there will be many qualities of wine produced on suitable sites. There is no more reason for this not being done in India than in Australia, while in India there are many advantages in climate and grape soils. The total import of provisions was:—1878-79, 194,000*l.*; 1879-80, 234,000*l.*

Honey and wax are always great forest products, and, as we know at home, can be improved in quality. It is one thing to take honey from a tree in a forest, and another to obtain it from selected bees in hives. At this moment the Italians are carrying on a notable trade in the supply of queen bees to many parts of the world for the improvement of bee farming.

In the hills there is, according to Mr. P. L. Simmonds, a favourable opportunity ("Journal of the Society of Arts") for carrying on silkworm grain growing, silk production from silkworms and moths, and silk winding.

One of the first industrial enterprises in the hills was the establishment of breweries, and these have taken a steady extension.

The Government return is as follows:—

	Gallons.	
	1877.	1878.
Mussourie (established 1850)*	883,000	193,000
Mynee Thal (established 1876)	108,000	108,001
Murree (established 1860)	714,000	751,000
Simla (,, '69)	336,000	339,000
Solon (,, '77)	41,000	58,000
Ootacamund, &c. (established 1851)	29,000	28,000

* Government contract.

As to mineral working, the resources of the hills are turned to small account. Coal, iron, copper, and lead are found in the Himalayan and sub-Himalayan regions.

In southern India are found ancient gold workings, which are now attracting so much attention, and which are already referred to.

A very good paper on the mineral resources of India, was read before the Indian section of the Society of Arts† by Mr. W. T. Blanford, deputy superintendent of the geological survey of India.

Of copper he says there are several mines in various parts of the Himalayas, especially in Kumaon, Gurhwal, Nepaul, and Sikkim. These are all worked by natives on a very small scale, and the production is so inconsiderable, that even in Kumaon, where the number of mines is large, and many of them are said to be extensive, English copper is imported to supply part of the local demand. An attempt was made in 1839, at Pokri, to work one of the mines by English methods, but it was unsuccessful.

Of lead, galena, the most common ore, is found in Kooloo, Gurhwal, and Sirmoor in the north-western Himalayas, and in the former countries there are said to be rich veins of the mineral, but they have hitherto been little mined.

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† "Society of Arts Journal," 11th April, 1873, p. 386.

Silver is said to be found associated with lead in Kooloo.

Antimony is found in Kooloo and Lahoul.

In the Himalayas are also alum shales.

In Kumaon and Sikkim graphite or black lead is found.

The iron of Kumaon has been successfully worked, so far as the production of a fine charcoal iron is concerned; but it has not yet attained the proportions of a large or settled manufacture.

There can be little doubt that iron making must have existed in the Indian hills from the remotest epoch, and while the attention of archæologists has been directed to bronze, it has appeared to me that the early claims of iron are neglected. In many parts of the world the hills and valleys are occupied, as tradition tells us they were in the past, by tribes of ironworkers in a low condition, some of those of this day being gipsies of Indian origin, as many of their predecessors may have been. This process of working is of rude character, with very small furnaces, but turning out good metal. The hill workers seem to me to be the progenitors of those of the plains.

In 1837 Mr. Sowerby was sent by the Indian Government to report on the iron formations of Kumaon, and his report was so promising that he was authorised to set up ironworks. At the same time some blast furnaces were set up in that country by private individuals, but no success attended any of the attempts.

Afterwards ironworking was resumed, and an iron company was formed in Kumaon. From Thibet about 1,500 tons of salt were imported, and also 1,000 tons of borax.

In joint stock banks for the hills considerable capital has been raised for the formation of independent establishments. There are besides branches and agencies of the banks in the plains. Enough has been done to show that enterprise is growing, and that there is already a small field for the investment of capital. This field can, however, be greatly extended, and in the Neilgherries in particular there is a want of banking accommodation.

With regard to the general development of tea and coffee culture, the "Statist" of 30th April, 1881, p. 477, gives the following figures of export from India for 1879-80:—

	Quantity.	Value.
		£
Tea .... lbs.	38,175,000	3,051,000
Coffee .... cwts.	359,000	1,627,000
	—	4,678,000

The exports from India for the last ten months, ending 31st January, 1881, showing a large increase, are:—

	1880-81.
Tea, lbs.	42,347,398
Coffee, cwts.	269,445

VI.—*Trade with High Asia, Afghanistan, Kashmere, Thibet, Nepaul, Bhutan, Naga; Statistics.*

One feature of our position in India is little regarded, and that is the closure against us of our northern frontier, through which we can barely penetrate. China is closed and Thibet, and wherever Russian power penetrates the markets become prohibitory for our goods. Nepaul is closed along a frontier of many hundred miles. Kashmere is left in the hands of a tributary of ours, who has excluded us and oppresses the population we delivered over to him. To Kashmere a remedy can be applied, and the sooner the better. In that country a large English population could be placed, and the interior trade be promoted.

To reopen the channels of trade with central Asia the efforts of our governors and administrators have been long and slowly directed. In all that relates to this important subject, the services of that patriotic statesman and great scholar Brian Hodgson, so long our envoy to Nepaul, must be commemorated. Roads and fairs have been opened and emissaries have been sent to explore. At home the constant care of Mr. Andrew Cassels, as member of the council of India, has been directed to the promotion of this department of our commerce.

That this trade has some capabilities, the following figures, based on "Account No. 4 of 1878-79, Government of India, "Finance and Commerce," will show:—

	1878.	1879.
Hill Imports—	£	£
Kashmere	522,451	558,588
Ladakh	15,240	17,100
Thibet	96,000	150,000
Nepaul	385,982	1,103,841
Sikkim	—	12,622
Bhutan	—	16,451
Naga Hills	—	6,600
Exports to Hills—		
Kashmere	350,500	357,000
Ladakh	8,400	8,600
Thibet	13,900	14,500
Nepaul	170,000	797,000
Sikkim	—	5,500
Bhutan	—	11,000
Naga Hills, &c.	—	4,100

The foreign hill imports into India may be reckoned at 2 millions a-year, and the present productions of our own hills, valueless but a short time ago, approach a million in value.

A recent return, which is in the Society's library, is "No. 1 of "1880, Accounts Relating to the Trade by Land of British India "for the Three Months, April to June, 1880 (Calcutta)." It does not, however, give details during those months of any moment to our inquiries.

The most recent and most copious information on the whole subject is, however, a valuable statistical document by Mr. Stephen Jacob, C.S., assistant secretary to the Government of India in the Department of Finance and Commerce. It is entitled "Review of "the External Land Trade of British India for 1879-80 (Calcutta, "1881)."

This document is, however, too wide in its geographical limits for our special treatment. Thus it includes the trade of one of our most rising provinces—English Burmah—which supplies a large portion of the total. It may be noted that a valuable paper on Burmah, showing its remarkable progress, was read last month in the Colonial Section J, founded at the Society of Arts, and of which a full report is to be found in the journal of that society.

It will not be without interest to true statisticians to peruse what Mr. Jacob says as to the difficulties of obtaining true particulars from the native traders as to the quantities and value of the goods they bring to and fro. Although he states that more willingness has been shown to afford information, he places no absolute reliance on the present or on the comparative figures. It is in fact in the discussion of the true value of figures that the value of much of the real work of our Society consists, and not in the simple supply or manipulation of such figures. Indeed, the numerical method instead of being a safe instrument of science, becomes as fallible as other standards when left untested. It is indeed with such reservations as those suggested by Mr. Jacob, that I have in this paper endeavoured to give an approximate estimate of that portion of the subject which I have presented for the especial consideration of the Society.

It is well to give a brief abstract of the total land trade of India, which after all mainly passes over the mountain boundaries. Throughout this paper the rupee is conventionally reduced at ten to the pound :—

	1877-78.	1878-79.	1879-80.
Imports—	£	£	£
Goods	3,560,000	4,535,000	4,078,000
Treasure	281,000	396,000	518,000
Imports	3,842,000	4,931,000	4,597,000
Exports—			
Goods	3,162,000	3,669,000	3,973,000
Treasure	188,000	302,000	277,000
Exports	3,350,000	3,971,000	4,293,000
Total movement of imports and exports	7,193,000	8,703,000	8,870,000

Mr. Jacob observes that the treasure returns are quite untrustworthy, except so far as they relate to the Irrawaddy flotilla. He also observes that the apparent fluctuations in different items are the outcome of different items in the trade of the wide area embraced.

What I can most usefully take from Mr. Jacob's review is a calculation of the imports and exports to each country, exclusive of treasure, as in my table previously given:—

Countries.	1877-78.	1878-79.	1879-80.
Imports—	£	£	£
Kashmere	522,000	858,000	409,000
Ladakh	15,000	17,000	17,000
Thibet	96,000	153,000	71,000
Nepaul	385,000	1,235,000	1,397,000
Sikkim	—	12,000	23,000
Bhutan	—	15,000	36,000
Naga and Mishmi	—	6,000	7,000
Munnipore	—	5,000	1,500
Hill Tipperah	—	12,000	17,000
Looshai	—	5,000	10,000
Towang	—	34,000	6,000
Duffla Hills	—	—	1,000
Exports—			
Kashmere	354,000	251,000	282,000
Ladakh	8,000	9,000	15,000
Thibet	14,000	5,000	20,000
Nepaul	169,000	805,000	859,000
Sikkim	—	6,000	5,000
Bhutan	—	11,000	30,000
Naga and Mishmi	—	4,000	3,500
Munnipore	—	4,000	2,000
Hill Tipperah	—	1,000	2,000
Looshai	—	1,700	3,500
Towang	—	—	100
Duffla Hills	—	6,000	3,000

It will be seen that the figures of Mr. Jacob do not differ materially from mine. As the figures refer to countries geographically separate, no general result can be given, and the fluctuations in each case must be individually explained. Some of the differences between imports and exports, evidently arise from operations of bullion and treasure.

The great importance of the trade with Kashmere and Nepaul clearly comes out and Thibet is of sufficient importance to justify the efforts being made in that direction for the advancement of our commerce.

Among other advantages now possessed by the western hills, must be reckoned the opening of the port of Kurrachee, by which quicker access is obtained to the home markets. This is due to the persistent efforts of Mr. W. P. Andrew, who has also taken great interest in hill progress.

Sir T. Douglas Forsyth has justly dwelt on the importance of Kurrachee in this respect, in his paper on the progress of trade with Central Asia, read before the Indian section of the Society of Arts.* He found, though he could not obtain materials to make out the details, the following figures as to Kurrachee:—

	Imports.	Exports.
	£	£
1855–56	629,813	604,460
'59–60	1,712,751	947,938
'73–74	1,461,765	3,507,684

The hill trade is considered greatly to affect these figures of increased exports.

Sir D. Forsyth gives the following:—

	Imports into India.	Exports from India.	Total.
From Afghanistan and countries beyond—	£	£	£
By Tartar and Abkhana Passes	516,513	120,643	277,157
,, Chawalers and Colera ,,	130,000	164,000	294,000
,, Bolan Pass	31,870	18,892	50,762
Jamoo and Kashmere	199,950	184,900	384,850
Ladakh and Yarkand	9,170	14,434	23,604
Totals	527,593	502,869	1,030,372

The year of this return Sir Douglas does not cite, and it is only brought in here to illustrate the distribution of the trade.

So also as to exports brought down to Kurrachee, chiefly through the Belooch and Afghan mountains:—

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* "Journal of the Society of Arts," 9th March, 1877, p. 329.

	£
Madder	12,000
Assafœtida	2,000
Raw silk	18,000
Sheep's wool	315,000
Horses	92,000
Fruit	15,000

Writing in the "Times," on the 2nd of April of this year, about Candahar, Mr. W. P. Andrew, with regard to the trade of Afghanistan, says that Sir R. Davis, when secretary of the Punjaub Government in 1874, estimated the trade at about 600,000*l.* per annum. Colonel Graham, Commissioner of the Derajab, reckoned the trade by the Gomal Pass at 500,000*l.* per annum. At the Geographical Society last year, Sir W. Merewether, Commissioner of Scinde, stated the value of the trade in one article alone, wool, in one year at 600,000*l.*

In a like way as gold enterprise extends in southern India, it is to be expected Beypore, Calicut, and other parts will tend to increase, particularly when they are adequately provided with railway communication.

VII.—*Development of Hill Resources; Aborigines; Military Establishments; Economy and Efficiency.*

It is greatly to be regretted that railway extension in India makes such small progress, for the example of the United States is sufficient to show us the value of improved transport in the development of the country. In India railways would be attended with an advance and equalisation of prices which would improve the condition of the whole community. With the present low artificial prices the people cannot consume our commodities.

As to the hills, railway communication has been neglected. After great agitation a railway has been got within 50 miles of Darjeeling, whereas an Englishman ought to be able to get from Calcutta to his own climate in the hills within a few hours. The subject has been so little considered that it is not embraced in the valuable reports of Mr. Juland Danvers. The continuation to Darjeeling is now being undertaken by an independent company, and is expected to be partially opened this year. It is on a 2-foot gage, and will cost 140,000*l.*

The "Times" (of the 11th July, 1881) stated that the last link of the Darjeeling Steam Tramway was opened on the 4th, so that Calcutta is now in direct communication with its sanatorium. Sir Arthur Eden congratulated Darjeeling on being the first Himalayan station to connect itself with the railway system, and described the line as one of the most remarkable railways in the world.

When the real value of connection with the hills is understood, and its bearing on the prosperity of India, it is to be hoped that adequate provision will be made.

The value of the hill towns, small as they then were, was shown during the mutiny. They became places of refuge for many fleeing from the plains, and for the wives and children of those fighting in the field. In time too they were able to take a small share in the restoration of order.

Had they been organised in the way pointed out by me they would have exerted a more material influence. In consequence of the agitation that we carried on it was at one time determined that one-fifth of the English troops should be put in hill cantonments, but under the extraordinary system of finance that prevailed in India, by which capital had been mixed up with revenue and the due bounds of each confused, the cantonments have not been provided. One good, however, has attended the agitation, that better barracks have been built in the lower stations, and thereby the health and efficiency of our soldiers have improved.

Until the hills are the seat of the chief military stations we shall not reap the full benefit of reform. Then we shall have the men and their wives and children in good condition, and as a collateral advantage the presence of such large temporary populations will promote the growth of great permanent settlements. Veterans will remain in the hills, orphans and other children who have been born or brought up there, will make these towns the places of their abode. The development of hill resources, of the trade and manufactures, will give independent strength to the towns, and favour the constitution of a hardy English aboriginal population.

The permanent residents would constitute the cheap reserve of our military force, and would render equally difficult the invasion of India from without, and the successful prosecution of revolt within.

What the population of the Hill settlements is will not be known until the publication of the results of the present Indian census of 1881. That it is assuming a practical character may well be judged by the case of Darjeeling, of which some particulars have just appeared.

The population of Darjeeling was in—

1872	94,712
'81	157,038
Increase	62,326

To this extent it has grown from the number of a few savages on a hill. This great proportional increase—the largest in Bengal—is justly attributed to the extension of tea cultivation.

In the late plans of army reform the hills have not been forgotten, but it has not been seen that in time the hill tribes will give us the means of greatly reducing the cost of the English force in India. This force is the essential element of peace among the discordant elements of Indian population, and the cost of its maintenance is enhanced by the unhealthiness and discomfort attendant on the unfavourable climate. In the hills, however, there is no need why the cost of maintenance should be more than at home. Thus extra charges would only be required for that portion of the force which is in the unhealthy cantonments.

There is not a greater but a less price to be paid for vast advantages. To the force in the unhealthy stations the great resource would be afforded of a change of quarters to the hills, and the evils of long service in India would be thereby remedied. It would be quite possible to offer as a bonus for Indian enlistment the passage to the hills, and the facility for settlement there after a few years' service, saving the return passage, and retaining the conditions, as at home, of liability to service in the reserve. Thus the resources would be in India instead of in this distant island. They would be large and immediately available. There would never be the delays and fears of the arrival of reinforcements from England.

In any estimate of the value of the hills, the military question enters not only for military purposes,* as stated elsewhere, but for financial.

There is not only a saving on the sick expenses of English officers and soldiers in favour of the hills, but there is the saving in furloughs and sick leave. From the time the hill stations were started as sanitaria, this latter advantage was felt and taken advantage of. In many cases it no longer became necessary to give leave for the Cape or for Europe, but it was found sufficient to give a short leave for the hills, the soldier or civilian being still within hail. At the same time the efficiency of the service greatly gained. Many of these remarks apply likewise to the working and expenditure of the civil service, covenanted and uncovenanted.

Besides the great benefit to the public revenues obtained during forty years, and which has more than repaid any outlay for establishment, there has been great saving for individuals. Instead of the family being taken to Europe at the expense of the public servant, they could accompany him to the hills. So also many a wife and child, who would have been ordered home for health, has been sent to the hills, where it has been possible to make a visit within a short leave.

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* With many of these questions I dealt in my paper read before the Royal United Service Institution in 1859 (vol. iii), "On the Organisation of the Army "in India, with especial Reference to the Hill Regions."

So certain are the gains, that it would be thought that when it was decided to put a large proportion of the English soldiery in the hills, and that the necessary cantonments should be provided, the erection of such cantonments would have been long since completed. Such, unhappily, is not the course of Indian finance. Figures of diverse and discordant kinds are brought together to be made into totals and used for comparison.

It is a misfortune even for this country that the bounds of the national capital and national expenditure have seldom been well determined, and on this head it may well be said that the discussions before the Statistical Society on national stock taking have been deserving of more attention by public men than they have received. India is less advanced, and is being provided with the modern and expensive requirements of a new empire. It thus becomes of primary importance for Indian statesmen to consider all public questions under this aspect, for the delay of productive and reproductive expenditure signifies a positive loss, and not an economy or a gain, as those who cut down expenditure, under the notion of discharging a public duty, do not always discern. There is this relation of national administration to political economy, that to a great extent an empire is only one form of a manufacturing and trading establishment.

Only a few of the cantonments were provided, and therefore the whole proportion of troops proposed to be sent to the hills cannot to this day be sent there. If a Government commission had been appointed, or some Calcutta merchant had sent a clerk competent to make out a *pro formâ* account, it would have been determined that a large saving had been and could be effected, and in what way. The charges being for English troops, came, for a great part, into that formidable class of payments here, which tend so much to embarrass financial and currency arrangements.

The matter, however, goes further—It is to be observed that the English soldiery draw the same charge in the hills as in the plains, whereas the advantage of living in English climates could be accompanied by English pay, and by a large economy of public money in the reduction of the home charges.

In that respect, without formulating any sums in figures, it is certain that a very large saving can be effected, and in a most acceptable form. This is one reason why this question has been long since pressed by me on Indian and home administrations, and there appears some prospect of a movement being made. The measure must not, however, be treated as a minimum and delayed, but as a maximum, and put into effect as quickly as possible.

It is not remarkable that all these capabilities of the hills should have induced many distinguished officers to propose plans for military colonies. Among these may be mentioned General Sir Vincent Eyre, and of those most active in the present day, General McMurdo.

In connection with the hills there comes naturally the consideration of our relations with the aboriginal populations. While we are stigmatised by some writers as recent invaders of India, the oldest populations bear evidence how epoch after epoch they have been subjected to grinding oppressions, from which our dominion comes to relieve them. The Mussulmans of various races were not our only predecessors as conquerors. The Hindoos have destroyed the religion and languages no less than the liberties of vast nations. It is not the millions of the Tamil speaking races alone which seek relief from Hindoo domination, but also the many millions of Kolarians, and particularly the tribes degraded to the position of pariahs.

Whatever jealousy and hostility of feeling we provoke among those who have in later times preceded us as conquerors of India, to the Dracidians and the Kolarians we offer the prospect of deliverance from a bitter oppression. Unfortunately as yet we have not fully appreciated the duties of such a task, but have in some instances abetted or upheld the domination of the Hindoos.

The hill aborigines include many hardy tribes, and they have a much greater disposition than the other races to cast in their lot with ourselves. Under judicious administration our relations with the hill aborigines would become the means of our acquiring the sympathies of other aboriginal populations of more importance, and affording to us valuable allies. It has followed in the course of events that we have bestowed more attention on Hindostani, Sanskrit, and Bengali, or even on the foreign Persian, than we have on the older vernaculars. The cultivation of these latter will follow on a better acquaintance with those by whom they are spoken. In this connection may be mentioned the constant efforts of Dr. A. Graham of Edinburgh to promote the advancement of the Southals, and the successful results of the Danish missionaries in this field of labour.

Indeed the influence of civilisation consequent on our occupation of the hills is of paramount consideration. Whatever may be said in depreciation of our rule in India, the main fact remains that we have procured for the people peace and a participation in the advanced civilisation of the west. That is our great task, for which we need no apology, and the means of best advancing it are well deserving of our serious care.

Much as has been effected by our sojourners in the plains, the result is small in comparison with the needs of that great portion of the human race committed to our rule. Although at first sight the specks in the hills may appear insignificant in comparison to the labour to be undertaken, yet it can be shown that more will be obtained from the exertions of the statesmen sent from England, if placed under healthy surroundings, and still more if aided by the co-operation of a local English population.

Thus with small means and from small beginnings we may constitute a new empire of civilisation in India, as we have constituted an empire of conquest with small resources and almost by individual effort. In fact there is no subject connected with India so great in its associated capabilities as this one of the hill regions. It is not only the development of a field of enterprise for our people, but the best safeguard of the populations committed to our care, as well from foreign aggression as from the horrors and devastations of internal dissension. Indeed it offers to us the achievement of our noblest destiny in the world, the promotion of good and of happiness among mankind.*

DISCUSSION *on* MR. HYDE CLARKE'S PAPER.

SIR W. ROSE ROBINSON, K.C.S.I., appreciated the value of Mr. Hyde Clarke's paper, and the importance of the subject submitted to the meeting. He desired to supplement the information as regards the hill tracts of South India, by noticing the great highland plateau and ghaut ranges of the Coembatore, Madura, Tinnevelli districts, and of the native States of Travencore and Cochin, known as the Anemallah and Palny Highlands, and Permed, &c. (Travencore), ranges. He pointed out that the area of these plateau lands and hill slopes vastly exceeded that of the Neilgherry ranges mentioned by Mr. Hyde Clarke, and that they stretch almost down to Cape Comerin. These tracts have already attracted European enterprise, and promise to continue to do so with increasing activity. The Thevrai Hills (Salem) may also be noticed. Though of comparatively low altitude and narrow area, these accessible hills have attracted both the planter and those in search of an occasional sanitarium. As regards the Neilgherry plateau, as distinguished from the slopes, it must be noticed that the soil is poor, possibly too much so ever to attract the European agriculturist. Coffee industry is almost limited to the slopes; cinchona is grown as high as Ootacamund. He would not now allude to the prospects of the gold mining industry in the Wynaad and western ghauts generally; it is yet in its infancy, but promises to exercise a vast influence on the future of these hill districts, and possibly in parts lying far afield beyond the part now attracting the attention of capitalists in Wynaad. Mr. Hyde Clarke had very justly drawn attention to the fact that the native intelligence very rapidly follows the lead of European enterprise and capital in the development of new country and promotion of lucrative industries. When he first became connected with Malabar in 1846, coffee plantation was quite in its infancy, and entirely in the hands of European planters; but now, he believed, the coffee area in the hands of natives was almost equal to that which we still find in the hands of Europeans, and native plantation is extending. In some cases the natives supplant the European pioneers. For instance, the indigo industry in Cudappah and Nellore had passed entirely into native hands; gold mining, too, is apparently attracting the attention of native proprietors and capitalists. As regarding the aboriginal tribes of the hill districts, he did not know whether Mr. Hyde Clarke's remarks applied to the immigrant followers of European enterprise, or the indigenous tribes. Very large bodies of natives from other parts of South India settled in those hitherto sparsely occupied tracts, but the aboriginal tribes would probably disappear. This was the case with the Todas of the Neilgherries, who are rapidly disappearing, as also the Kurumbers and other jungle tribes who roam over the slopes, but they were replaced by much more industrious races from the low country. He did not look forward to a large or useful immigration and settlement of Europeans and English labouring classes in tropical India, and should on every ground deprecate European colonisation—whether military or other—of South Indian hill tracts.

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* I have been indebted for assistance and corrections to the Marquis of Tweeddale, Mr. A. Cassells, Sir W. Rose Robinson, Col. Hopkinson, Mr. Juland Danvers, Mr. Caird, C.B., our President, Mr. Samuel Jennings, and Mr. Samuel Ward of the Lebong Company, &c., &c.

The Rev. JOHN LONG said that he took a great deal of interest in this Indian question. So far as Mr. Hyde Clarke's exposition went it was correct, but it did not touch upon two great difficulties in connection with the subject. The problem was, could the European races perpetuate themselves and form colonies on the Himalayan plateau? and in the next place, would they have the means of living such that they could enter into competition with the natives? With regard to the first part of the problem, he asked a great number of medical men in India and elsewhere on the point, and they seemed to agree upon this, that up to the present time there was no proof of the possibility of the European race surviving; all the examples that were brought forward were rather adverse to the continuation. That was the opinion of the great majority; it might be wrong or it might be right, and so it would remain until other medical men would take the subject up by producing reliable statistics. With regard to the social aspect of the question, he might say that he had been a great deal himself in the Himalayan mountains and in the Neilgherries. He recollected spending a few days with Lord Napier in the Neilgherries, and as they were walking out together the subject came up; his lordship observed "that the greater part of the land there belonged to the aboriginal tribes and to natives, and that even if the Europeans could have possession of it, it would involve a great deal of expense to get them up there; and the point was, could they be able to compete with the native." Where a native ryot could keep three children and a wife on 12*s.* a-month, it was rather difficult for a European labourer in any shape to compete with him. The European would very likely succeed if he went as a sort of *capitalist*, or farmer employing a number of natives under him; but that was an experiment that had yet to be tried. There was a very large class in India of East Indians that the Government did not know what to do with, their condition is one of an embarrassing nature. These were the two great difficulties. If they looked back to history, there was no doubt that natives and Englishmen belonged to the Ayrian race, and it was a rather curious thing that they could not continue in India in the hills. At one time the Portuguese went in greatly for colonisation and for marriage with the native women of the country, but it was not a very successful experiment; they seemed in many cases to have been absorbed or to have degenerated. He had gone into the question in relation to the Portuguese in Calcutta, where they had been very numerous, and he had not found a single case where the race had continued pure, having degenerated in consequence of the admixture of native blood.

Mr. H. M. MACPHERSON had visited most of those hill stations, and so far as his own experience as a medical officer went, as well as the information he had derived from others, there was no reason to suppose that beyond the second generation the European could continue to exist without an intermixture of fresh European blood. Some years ago there was an attempt made, at the suggestion of Sir Vincent Eyre, to settle as colonists in the Deyrah Dhoon, a number of families of Portuguese extraction, and every endeavour was used to make the experiment successful, but it entirely failed.

Mr. JULAND DANVERS, referring to the concluding passages of Mr. Hyde Clarke's paper, regarding the extent to which the aboriginal inhabitants of India were interested in the question, said it seemed to him that the advantages that were conferred upon natives by developing the hill districts in that country, were really of an indirect kind, and that they must look upon the question more as one affecting European interests. No doubt a general benefit would at the same time be secured by any measure which would improve the European race in that country, and maintain the health and strength of the civil and military servants of the State, thereby enabling them the better to perform their administrative duties. He thought with Mr. Long and Dr. Macpherson, that there was very little hope, from what had been learned by past experience, of ever succeeding in colonising India by means of permanent European communities being established on the hills; but at the same time a kind nature had given them those hills, and a European section had been placed there to govern the country. It was, therefore, their bounden duty to take advantage of the opportunity they afforded of recruiting health and strength. Mr. Hyde Clarke had said that railway communication had been very much neglected.

Well, that might to a certain extent be a true bill; but all those matters that involved expense, also involved difficulty, and the great difficulty in extending railway communication in India was the want of money, which hitherto had been obtained on interest paid by the taxpayer of India. Railways had already conferred immense benefits on that country; they would continue to do so, and are now earning dividends which covered the interest. The first duty of Government was to provide railways for the great commercial highways, and to protect the people from famine; but he did not think that the hill stations had been altogether neglected, for there were very few now which had not railways brought almost to their very feet. Whether they turned to the upper part of the Punjaub, to Simla and Kussowlee, or to Nynee Tal, Darjeeling, or in the south to the Mahableshwar Hills and the Neilgherries, they found railways sometimes at the very foot of the mountains, and always within easy reach. In the case of Darjeeling, a tramway had been taken up the mountain several thousand feet. Much had been done, but he admitted much more remained to be done in the way of railway extension in many directions. There was one important question in connection with the subject, which he thought deserved great consideration at the present time, and that was, how European children being born and bred in India, could best be allowed the advantages of the hills for training and education? He thought that the hill sanatariums and the uplands of India should certainly be made as much available as possible for this object. Not a year passed without a large importation for service under the Government and the railway companies, of that class of Europeans who could not afford to send their children to Europe to be educated, and they were obliged to depend on such education as was afforded in the plains, where their constitutions were ruined and their physical powers exhausted by a tropical heat. He trusted that before long strenuous efforts would be made in a systematic way to bring about a plan for sending their children to the hills. Both the Government and the railway companies were in favour of it. One difficulty and another arose with regard to the parents, who hesitated to allow their children to go a long way off out of their sight; but railways had reduced distance, and the telegraph had annihilated it, and therefore he had no doubt that good sense would prevail, and that parents would appreciate such a benefit on behalf of their children. It was a matter worthy the attention and consideration of all Englishmen.

Dr. T. Graham Balfour, F.R.S., commenting on the subject of the health of the troops in India, said that he had not the advantage of the gentlemen who spoke before him, of any personal experience in the matter of Indian life; but in the course of his official career, it had been his duty to inquire carefully into the subject of the health of the troops, and in his opinion there had been one or two important points lost sight of by the military authorities in regard to the subject. They waited until the health of the troops had been so much deteriorated in the plains, that they were no longer fit for the efficient duties of soldiers, and then they sent them up to the hills to regain their health. It appeared to him—and he had taken some pains to inquire into the subject—that the better course would be to send the troops to the hill stations on first landing in India, to enable them to become habituated to the climate, and also to the customs of the country, and after they had been there for a sufficient time, to bring them down to the plains and gradually work them towards the sea-board, to embark them for England when their term of service had expired. The reverse had been the rule hitherto adopted. They were taken out to India, first employed in the plains, sent up to the hills generally as invalids, and when sufficiently recovered were brought down to the plains for duty, and if their health again gave way, sent home as invalids to be discharged. He thought it was a great misfortune that the course he had suggested had not been pursued. He concluded by saying that the importance of the hill district had not been sufficiently appreciated by the military authorities as a means of keeping men in health during the first few years of their service. He trusted that the system would be carried out, and as grafted upon it they might try the possibility of locating some of the time-expired men in the hills, and endeavour thus to carry out the principles which had been discussed that evening on the subject of European colonisation in the interests of India. Of course such a measure could only be carried into effect with the free consent of the men to be thus located.

Mr. TRELAWNY SAUNDERS said that there could be very little question that an enormous field opened itself up in the direction of the colonisation of India, in the sense of the introduction there of European capitalists, not of European labourers; and the development of India, not only for the benefit of her people, but for the benefit of this country, was the direction in which he had no doubt Mr. Hyde Clarke wished to press colonisation. It was not only in the development of communication by roads and railways in India, so necessary to bring about that balance in the distribution of food supplies especially, which the people particularly required in times of famine when facilities for the distribution of food made all the difference between starvation and non-starvation, but in many other directions, particularly in that of the utilisation of waste products, that they must turn their attention. At the present time he knew that private enterprise was directed to morasses full of the bamboo, that had hitherto been of no use to mankind, which was now being looked to as one of the principal resources for paper making; and amongst other substances one was brought to his knowledge that afternoon, very little known in the market, suitable for tanning purposes. Mr. Hyde Clarke with his far-seeing insight, pointed to the great Himalayan region and to the few parts that the English occupied, at long intervals, along that region, in comparison with the vast extent of ground which those mountains occupied. India had itself more than 2,000 miles of frontier on the north, and the countries beyond had been looked upon, as they formerly looked upon the interior of Africa, as a vast desert of no use to mankind. But they had along those 2,000 miles of frontier, the greatest, most productive, and most ancient wool field on the face of the earth, and yet out of that region they scarcely got a bale of wool at the present time. When they remembered that the original prosperity of this country was derived from the wool trade (and the lord chancellor's woolsack in the House of Lords was the emblem of that prosperity), he believed that their interests in India would be very much advanced by opening up access to this great wool country, and perhaps more so than by any other single circumstance whatever. The quality of the wool was unlike anything in any other part of the world; certain portions of it were remarkable for lightness and other high qualities, and the question of the carriage of the wool down to navigable rivers and railways, was solved by the development which the animal itself had attained there and nowhere else. The sheep of Thibet was a beast of burden, capable of carrying loads of from 20 to 50 pounds weight. Flocks of those laden sheep, amounting to 1,200, were often driven along the mountain paths, attended only by half-a-dozen men with their dogs, thus settling the whole question of the transit of this wool down to the frontier. No doubt the attention of the Government of India had been called to the subject, and something had been done to encourage trade with the interior of Asia, but the steps hitherto taken had been quite unsuitable. After a few more remarks upon cognate questions, Mr. Saunders concluded by saying that by developing the communication along those 2,000 miles of frontier, and into the interior of this region, without exception the greatest wool field on the face of the earth, they had a source of wealth incomparable.

Dr. Guy, F.R.S., in commenting upon the subject of the intermixture of European and Indian blood, pointed out that there were two questions comprised under this head of inquiry; the first related to the possibility of maintaining the population by native half-castes; the other by the issue of intermarriages of Europeans with Europeans, the issues of such marriages remaining in the country. Sometime ago, he said, a somewhat eccentric author, Dr. Knox, of Edinburgh, writing on the races of mankind, insisted very strongly on the hopelessness of the second procedure. He carried his views on this point so far as to assert that the European races could not permanently occupy America, so that if emigration into America should cease, and the stream of emigrants be diverted to some other continent, the present population of America would slowly decrease and ultimately die out. Dr. Guy sympathised very sincerely with what had fallen from Dr. Balfour respecting the preservation of the health of our troops in India. What had been shown by Jackson to be true of the West Indies, would prove equally true of the East Indies. The troops should begin their Indian service in the high land, and end it on the coast.

Mr. M. G. Mulhall thought that Englishmen had reason to be proud of India, and to have every confidence in the future of their government in that country. He did not at all share in the idea of their inability to colonise it, because there was nothing so fructifying and fertilising in every part of the world as English capital. Let them look at the wonders that had been wrought by the Portuguese in Brazil. They found a country there four times the size of India, inhabited only by Indians, producing nothing. They had made it an important and productive country. The coffee of Brazil was more than half that of the world, and it was one of the most valuable crops that the world produced. He said then why should they not do as much in India as the Portuguese had done in Brazil. They had done undoubtedly a great deal; they had conquered India, and imposed upon her the English yoke, but it had been for her advantage. They had spent 120 millions sterling within the last few years in constructing railways, which had benefited not only that country, but they had given rather more on the average return to their shareholders than the railways of Great Britain; in other words they had given over 5 per cent. net profit to the shareholders, and he did not see in the least why they should be at all alarmed or throw cold water on the efforts made for the advancement of that country.

The President (Mr. James Caird, C.B., F.R.S.) in moving a vote of thanks to Mr. Clarke for his interesting paper, desired to point out that some of the speakers in the discussion appeared to have misunderstood the object of the paper, which, as he heard it, was not to enlarge the population of India, but to encourage migration of the natives from overpeopled parts to those where there was still room for them, and to provide European capital and superintendence to direct their industry to profitable results. One of the gravest questions connected with India at the present moment, arose from an apprehension that the existing population were increasing faster than their means of support. If there was barely food for them at present in some parts of India, in average harvests, and if the people were increasing at the rate of 1 per cent. a-year, or the half of that, they would in twenty or forty years, as the case might be, require one-fifth more land of equal quality with that at present cultivated, or must make the present area one-fifth more productive. There had never been a problem of greater difficulty encountered by the British Government, which could not evade its responsibility by leaving the remedy to nature. And no one who had studied the subject, would recommend any project which might tend to aggravate that difficulty. While in India he had visited the hill districts of the Neilgherries, where he had seen coffee plantations, tea gardens, and cinchona culture. He had also been for the last eighteen years interested in the cultivation of tea, both at Darjeeling and in Assam. In these districts suitable soil and good management had given satisfactory returns. But the value of the tea exported from India, and that of coffee, showed but a very moderate return on the whole for the capital expended. In regard to cinchona, the bark of which yields quinine, a febrifuge, there were several successful and considerable Government plantations in various parts of India, one of which he had visited at Ootacamund in the Madras presidency. The cultivation costs 80*l.* an acre before the trees begin to yield the bark, which is peeled in alternate strips up the stem, the other strips being taken the following year, and the tree resting the third. The wound is covered with moss, bound round the stem, which enables the bark to grow again. But though, when the plantation is well managed, it proves highly remunerative, the capital sunk is so large before a return is reached, that capitalists only can venture to engage in it. The rapid growth in that climate of fast growing trees is remarkable, Australian eucalyptus having been known to make 12 feet in a year in favourable situations, and such quick growing trees are most valuable for fire wood, which was getting very scarce. But gold, if we can trust to the daily announcements of new companies, seems the most promising crop of all in the hill districts of Southern India. He had been asked by the late viceroy, now a member of this Society, to look into this question when in that part of India early in 1879, and he had examined several of the planters, and also Mr. Brough Smyth, the experienced surveyor brought by the Government of India from the Australian gold fields. The opinion of that gentleman was very favourable to the prospects of gold finding and crushing. But neither by him nor by the planters who owned the land, was more asked for them than a modest sum to develop some of the workings so as to ascertain whether they were likely to pay. That will no doubt be done, but the sudden rush of gold companies, which has changed the demand for a few thousands of pounds into more millions before a paying result had been verified, is alarming. The capital asked for from the public for gold crushing already exceeded all that had hitherto been invested in the coffee, tea, and cinchona industries of the hill districts of India, and if the most of it should be expended on labour, would give full employment to the spare labour of the adjoining countries for many years to come. He was exceedingly struck with the fact he learned when at Roorkee, in Northern Bengal, where the great Government workshop was, where their engines and machinery were manufactured; Mr. Campbell, the superintendent, told him to his astonishment that he could import Swedish timber from Sweden to Calcutta, and bring it up 1,000 miles to Roorkee, more cheaply than he could bring timber 200 or 300 miles from the adjoining Himalayas; and it did seem to him (the speaker) that there was some great want of organisation in arrangements that could have permitted this to be the case. As a sanitarium the hill districts were most important; for it ought not to be forgotten that they could not hold India without a large European force. They had an English army there of from 60,000 to 70,000 men, which must always be kept up. They held India by the sword—there was no mistake whatever about that. Mr. Clarke's views were that if there was a large European military and civil population—men carried out at a great expense to the State—it was most important that provision should be made so that they should be kept in the best state of health which the circumstances of the country could admit. He thought the statements on this point made by Dr. Balfour were worthy of consideration on the part of the Government. It did seem to him a reasonable suggestion that soldiers when they were landed in India, instead of being first kept in the plains during the extreme heats of the climate, to which they were entirely unaccustomed, should rather in their turn be taken to the hills and gradually acclimatised, and subsequently be brought down to the plains; and thence after their term of service in India, passed on to England, less enfeebled than they very frequently were under the present system. It was perhaps inevitable, but none the less deeply to be regretted, that Indian subjects so little engaged public attention in this country. We must hope that when the engrossing question affecting the five millions of Ireland has been satisfactorily dealt with, there would be some consideration given next session by parliament to the not less critical condition of our 200 million fellow subjects in India.

Mr. Hyde Clarke, in reply, said that one great misfortune which he had had was that he had been addressing an audience in which there were many distinguished Indians. India was so vast, and his subject went over so large a geographical area, that it was very difficult for men of the greatest experience not to avoid, in speaking from local knowledge, erroneous results as to other portions of the country. However, he had got pretty well through the ordeal, and however he had been criticised, the importance of the subject at all events had been vindicated, while he individually, as the author of the paper, had received a very large amount of information, which would help him in the development of the subject in future years. It had been asked whether it was possible for Europeans to perpetuate themselves in India. When they talked of India in regard to this question, of course they meant the hill regions. The President had said very clearly that he had in no respect contemplated the encouragement of mixed races. Dr. Guy had stated what he (the speaker) believed to be a perfect truth with regard to mixed races, wherever they were met they had always the same characteristics. He recollected a very happy phrase which was used by the Turks with regard to their Eurasians, the Levantines. They did not call them half and half, they used two words, which were something like "half moiety," two halves which did not fit. It was said that they had the vices of all their ancestors, with a degree of cunning derived from the more advanced race, which made them still more mischievous members of society. Generally speaking he believed that would apply to mixed races all over the world. Dr. Guy had very well called their attention to a psychological fact, which showed the peculiar nature of the constitution and minds of those individuals. He had spoken also of Dr. Knox's views, but he (the speaker) had no question that Dr. Knox was wrong with regard to the United States. He knew absolutely that there was a large proportion of the population of New England which was self-propagating, and that experiment had been going on for a very long period. The city of Boston, in Massachusetts, celebrated the two hundred and fiftieth anniversary of its foundation last year, and it had been followed by many others. There was, however, a very curious phenomenon which had not been sufficiently examined, and which affected apparently some races of men and some races of animals—it was the effect of the transplantation of animals from one district to another. Even in India he had heard that horses moved from one district to another would die of the change; and it was certainly a very curious thing that in some circumstances an animal died by transplantation; and with regard to man, there were local influences of soil appreciable, he had given it the name of creolitation. With regard to the main question of degeneracy, most of the medical evidence applied to the Eurasians as to descendants of Englishmen; they had three generations in that very district of Darjeeling in as healthy a condition as any one could desire, with their children running about with as rosy cheeks as in any part of this country. There did not appear to be the smallest foundation for the opinion that the English race could not be propagated with English blood in what might be called the English climates of India. It was possible, as he had said, that there might be changes from some undistinguishable cause affecting the forms of individuals. With regard to what we know as Yankeeism, and which is found in the States and in Australia, an English family might emigrate to Canada and the children born before the emigration were of course positively English in their characteristics. One of the children born however on American soil would be what was called a Yankee. The next child would be English, and the next a Yankee, and so on. With regard to the solution of the question, however, it must be left to the celebration of the two hundred and fiftieth anniversary of Simla or Darjeeling. In the meantime they need not disturb their minds very much with regard to it. The subject had likewise been embarrassed by people supposing it was proposed to settle the Eurasians in the hills. There could not be a population more unfitted for such a purpose. The experiments of Sir Vincent Eyre conclusively proved that Mr. Vincent had very great zeal on the subject, and took a practical mode of testing it, and it failed. Another thing that had failed, had been the sending of soldiers and settlers debilitated by the process Dr. Balfour had described, up to the hills; but this had nothing to do with the question with which they were dealing, which was the question of the colonisation of English capital. That implied of course the settlement of English capitalists as well as English soldiers in those districts which were most compatible with their constitutions. Then there was something further than that. They could see clearly by the experience which they had in India, that these were places where you could put yeomen. They had the materials of that in men from Cumberland, Westmoreland, &c. Their passage having been paid out, they might be employed for a few years in India to work out their passage; then they would remain and go and do what they would have done at home, viz., get their small place in the hills and there earn a maintenance. With regard to the aborigines, his friend Sir W. Robinson had referred to the Todas. Well they knew that the Todas were a very peculiar race indeed; but the Himalayan tribes were not diminishing, but rather advancing. The Lepchas had suffered most by contact with Europeans in Darjeeling, but they were not extinct, and it was to be hoped that they would come under happier auspices. He thought a great deal of what

Mr. Danvers had stated with regard to the railway children. It was perfectly clear and practicable to place these children on the hills. If they recollected what the Lawrences did, and what had been done in commemoration of them by the establishment of military asylums in various hill districts, it was evident it would be a very good thing to do the same thing for what Mr. Danvers had called "railway children." What Dr. Balfour had said, and which had been confirmed by Dr. Guy and others, with respect to the stationing of English soldiers, was perfectly practicable. It had been admitted by the Government years ago. There appeared to be no reason why after allowing for contingencies for active service in the field, the English soldier in India should suffer more than in his service in any other parts of the world. With regard to the gold, he must say that his tendency, and he was not altogether without some practical acquaintance with the subject, was to go with Mr. Brough Smith. There was no doubt that some as good gold mines as there were in the world had been so worked as not to produce the gold in the ores, but this was now remedied. His own calculations on the subject, however, were that the waste of capital in this connection was not likely to be very great, because it was a process that would check itself. They could not go on more than about a couple of years experimenting on the production of gold, people generally got sick of it, and there was an end of it.

MISCELLANEA.

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I.—*International Statistics of Merchant Shipping.*

THE following is a translation of an article by M. Loua in the *Journal de la Société de Statistique de Paris*, reviewing a work recently issued by M. Kiaër, Chief of the Norwegian Statistical Bureau, on *International Statistics of Merchant Shipping*, part of the series arranged for at the International Statistical Congress at Pesth :—

"For some time past we have been desirous of preparing a comparative return of the merchant navies of the various countries, and had in fact collected a great number of notes and a mass of documents bearing on the question, but after having thoroughly gone into the subject, it appeared to be so fraught with difficulties, and the time at our disposal was so limited, that we were reluctantly compelled to forego our intention; moreover, in our capacity as Secretary to the Permanent Statistical Commission during its sittings at Paris in 1878, we learnt that our eminent colleague M. Kiaër, chief of the Norwegian Central Statistical Bureau, had been chosen for this important work, and we have anxiously awaited the result of his labours. His work is now before us, and having carefully gone through the numerous tables and the notes and commentaries which accompany them, it appears to us that M. Kiaër has been eminently successful in his task. To prepare such complete and interesting returns as M. Kiaër has succeeded in producing, must have necessitated a very large amount of labour and research on account of the many difficulties which exist in the way of obtaining reliable statistics on this subject, and in producing them in a comparative form.

"M. Kiaër points out the many difficulties with which he has had to contend, and we cannot do better than follow him in presenting in as clear and concise a manner as possible an analysis of the introduction which precedes his tables.

"The first difficulty which presents itself is to ascertain the kind of ships which in each country are actually included in their merchant navy. On this subject it will be sufficient however to point out what is the custom in the principal countries. In England every ship is registered, with the exception of boats of less than 15 tons burthen, which are employed exclusively in the river and coasting trade, and open decked boats of less than 30 tons engaged in fishing and short coasting voyages, a register of these being separately kept.

"In Denmark all vessels over 4 tons are placed on the register, and in this country also special records are kept of boats from 4 to 20 tons burthen engaged in fishing or in the coasting trade.

"In Norway the same regulations are observed, with special records of fishing vessels and ships engaged in the coasting trade, but not including boats employed in the lake and river trades.

"In Sweden the registers only include sailing vessels over 10 tons and steamships over 20 tons, but unlike the two preceding countries, all vessels comprised in this category engaged in the river and lake trade are also shown.

"In Russia, boats of less than 10 tons, unless engaged in the fishing trade, appear on the register; the same regulations are observed in Finland, although here all steam vessels of whatever tonnage are registered, as well as every description of boat which is engaged on the lakes of Ladoga and Saïma.

"In Germany all vessels employed in the river trade are not included, and as regards sea-going ships, steamers having a net tonnage of less than 11 tons and sailing vessels of 15 tons are also excluded.

"In Belgium and the Netherlands no account is kept of fishing boats, in the former country only ships of more than 60 tons being registered.

"In France, on the contrary, the registers comprise a large number of small boats, even as low as 2 tons, engaged in fishing, pilotage, &c.

"In Portugal the limit is 20 tons; in Spain 50 tons, and in these countries all fishing boats and those engaged in the port and harbour services are excluded.

"In the case of Italy it is somewhat difficult to accurately define the limit of the tonnage which appears on the registers; vessels however of 10 tons burthen and less are shown.

"In Austria all boats of whatever size are registered, whether engaged in fishing or for other purposes.

"In Greece also a very large number of the smallest boats appear on the register.

"In Japan national ships are distinguished from foreign; and here also a record is kept of all boats, even to the smallest.

"In the United States a register is kept of all ships whether engaged in short or long coasting voyages, in fishing, or in the lake and river trade.

"It will be seen, therefore, by the examples which we have given, that with these incongruities which exist in the limit of vessels registered, it is by no means an easy task to arrive at any useful comparisons. M. Kiaër has, however, solved the difficulty by taking as a limit vessels of 50 tons burthen, but at the same time recognising the value and great interest attaching to comparative returns, even of the smaller description of boats, he has not neglected, whenever it has been possible, to give the number of vessels comprised between 20 and 50 tons. This point being settled, we will not insist too much upon another obstacle which exists in the different systems of keeping the registers in the various countries, in some cases ships which have been sold, broken up, or lost still appear upon the register, but we will proceed at once to study a more important question, which is, the different systems of estimating ships' tonnage. If it is a fact that the same standard is almost universally adopted for sailing vessels, this is by no means the case as regards steamships, as so many different systems are employed in calculating the tonnage admeasurement of steamers. M. Kiaër is of opinion that it is absolutely necessary that a system of tonnage admeasurement applicable to the ships of all nations should be universally adopted. Another and even more important question affecting international mercantile marine statistics is the relative positions of the two kinds of shipping—sailing and steam. The latter, on account of the powerful engines with which the ships are fitted and the speed at which they travel, must necessarily render far more important services to navigation than sailing vessels; it is necessary therefore to estimate the difference in their relative utility. M. Kiaër estimates the steam ton to be equal in effectiveness to three sailing tons. Admitting that the results obtained by this process of calculation are not strictly accurate, yet, as this basis is uniform for all countries and for every year, the conclusions arrived at cannot fail to be of great interest to all who study the question. We will commence by taking the number of ships on the register on the 1st January, 1879. We find in one of M. Kiaër's first tables the following figures given for vessels of 20 tons and above:—

	Ships.	Tons.	Crews.	Horse Power.
Steam vessels	10,702	4,641,437	176,453	3,700,000
Sailing ,, ...	82,696	14,678,525	554,516	—
	93,398	19,319,962	730,969	—

"As regards vessels of less than 20 tons, the reason for not even giving an approximate estimate has already been stated above; and even if it were possible to give the figures, they would only have the effect of increasing the number without in any material degree affecting the tonnage.

"Taking each steam shipping ton to be equal to three sailing tons, the total would be as follows:—

	Tons.	
Steam vessels	13,924,311	(4,641,437 × 3)
Sailing ,, ...	14,678,525	
	28,602,836	

"It will be seen then from the foregoing statement that the total tonnage of steam vessels is 4,641,437, and as this aggregate burthen capacity is to a certain extent for passengers, but to a very much greater extent for cargoes, M. Kiaër is of opinion that when a ship is heavily loaded, on an average one ton and a-half of cargo may be estimated for every admeasurement ton. Calculating therefore upon this basis, and multiplying the actual tonnage, viz., 4,641,437, by $1\frac{1}{2}$, the result gives 6.961,500 tons, which, with a total of 3.700,000 horse power, corresponds to a burthen of 1·9, or nearly 2 tons to each unity of horse power. And as we find from statistics, which have been prepared on this subject, that there are actually in the world 69,000 locomotives, with a total horse power of 20,000,000, and carrying 16,000,000 tons of goods, thus giving a weight of 0·8 ton to each unity of horse power, the result shows that although these calculations are simply approximate, the relations between the propelling power and the actual weight carried are far more favourable in the case of maritime than in railway transport. If we divide the tonnage by the number of vessels over 20 tons, it will be found that the average tonnage of steamers is 434, while that of sailing vessels is as low as $117\frac{1}{2}$. The following table shows that the relative proportion of ships corresponding to a low tonnage is far greater in the case of sailing than in steam vessels:—

Classification according to Tonnage.	Vessels.				Proportional Tonnage of Sailing to Steamships.
	Steam.		Sailing.		
	Number.	Tons.	Number.	Tons.	
20 to 500 tons....	7,484	1,113,235	75,684	8,561,133	7·69
500 „ 1,000 „	1,786	1,278,488	4,872	3,346,011	2·62
1,000 „ 1,500 „	834	1,017,032	1,793	2,179,007	2·14
1,500 „ 3,000 „	567	1,116,518	346	588,985	0·53
3,000 and above........	31	116,164	1	3,389	0·03
Total	10,702	4,641,437	82,696	14,678,525	3·16

"It will be observed that although there is a very rapid diminution in the number of steamships comprised in the first four categories, yet the tonnage remains almost stationary, whereas there is a very rapid diminution both in the number and tonnage of sailing vessels. It will not be necessary to reproduce the actual table distinguishing vessels engaged in coasting from those on long sea voyages, as it will be sufficient for our purpose to state that the average tonnage of coasting vessels appears to be 73 tons (175 steam and 61 sailing), while for long sea voyages it is 503 tons (1,012 steam and 403 sailing). This difference would be even more noticeable if vessels of less than 20 tons were included, as the majority of them are employed in the coasting trade, while but a small percentage are employed on long sea voyages, and these latter, as a rule, have a tonnage equal to 6 or 7 times that of the former. If we compare the number of the crews with the number of vessels, we find that the average number of men and boys employed in steamships is established at 17, and in sailing ships 6. The difference in these numbers would be very considerably lessened if we deduct the number of engineers and firemen who have to attend to the engines and machinery of the steamers. It is evident that coincident with the increase of tonnage there has been an increase in the aggregate employment given by shipping, although the proportion of crews to the actual tonnage is higher in the case of small than of large boats. The proportional number of men to every hundred tons is 3·8, or in other words there is one man to every 26·4 tons; and this, it may be observed, is the average both for sailing and steamships. We have now to examine in what proportion the merchant navies taken conjointly have increased. For this purpose it will be necessary to give the figures only for decennial periods.

Annual Rate of Tonnage Increase.

	Vessels.		Total Tonnage.	
	Steam.	Sailing.	Actual.	Computed.*
1820–29	17·10	−0·49	−0·41	−0·25
'30–39	11·75	1·71	1·84	2·10
'40–49	8·37	3·28	3·41	3·65
'50–59	12·63	3·95	4·32	5·00
'60–69	8·44	1·10	1·75	2·74
'70–79	9·34	0·08	1·71	3·65

* Acting on the supposition that one steam vessel is equal in effectiveness to three sailing vessels.

"We do not attach too much importance to the great increase shown in the first three periods, as on account of the extreme difficulty in obtaining reliable statistics for such early years, it is quite possible that the figures themselves are not strictly accurate; they may, however, be taken as very near the mark, and they indicate very clearly that a greater preponderance has been acquired by steam than by sailing vessels. An explanation of this striking increase in the earlier years may be ascribed to the fact that like every important invention, great attention was attracted to steam at its commencement, but as it acquired greater perfection and power, the movement assumed more uniform proportions. Up to the year 1860 there was a marked increase in the tonnage of sailing ships, though in a lesser degree than that which distinguished steam tonnage; but after that year this increase ceased, and the figures remained almost stationary, which may be taken as a sign that an almost certain diminution may in future be expected. Taking the whole of the facts into consideration, and looking at the total movement of the computed tonnage, which attained its maximum in the period 1850-59, there can be no question as to the considerable influence exercised over this total by steam; but at the same time we must not forget that this period was an exceptionally prosperous one, all branches of industry and commerce being in a very flourishing condition, and it was not until the year 1857 that the commercial crisis caused a general depression, the effects of which were felt for years afterwards.

"The following table, showing the percentage of steam to the total tonnage, will indicate how rapidly steam is superseding sailing ships in the navigation of the world:—

Proportion of Steam to Total Tonnage.

Years.	Per Cent.
1830	3·00
'40	6·00
'50	8·85
'60	17·64
'70	29·92
'80	50·64

"Thus it will be observed that at the present time the total amount of steam tonnage equals, and even slightly exceeds that of all sailing ships, and there are three principal reasons which may account for this—the substitution of iron for wood in the construction of vessels, the invention and perfection of the screw, and lastly, the very great improvements which have taken place in the construction of the engines, whereby the consumption of fuel has been considerably diminished. It may be assumed that all these have been powerful factors in gradually converting the merchant navies of the world from sailing to steam.

"We will not follow M. Kiaër in all his minute investigation into the question of the movement of tonnage year by year, but will proceed at once to study the comparisons which he draws between the merchant navies of the various countries, at the same time we must express our regret that it has not been found possible to furnish more complete details respecting the building of ships, their losses by shipwreck or other causes, and also the different purchases and sales of each description of vessel. In order to render the comparative statements as accurate as possible, the author has taken as a basis the limit of 50 tons for his vessels, and we may add that for those countries whose official returns do not distinguish between ships above or below this limit, he has inserted in his tables those vessels with a tonnage the nearest approach to it. This may account for some slight discrepancies which, insignificant in themselves, may appear between the figures in the supplementary tables and the totals given in the general return.

Return showing the Number and Tonnage of Merchant Vessels belonging to the Various Countries of the World on the 1st *January*, 1879.

[The tonnage is expressed in "actual" and "computed" tons, each steam ton being considered equivalent to three sailing tons.]

Countries.	Steam Vessels.		Sailing Vessels.		Total.		
	Number.	Tons.	Number.	Tons.	Number.	Actual Tonnage.	Computed Tonnage.
1. United Kingdom and possessions in Europe..	3,514	2,566,237	13,022	3,998,082	16,536	6,564,319	11,696,793
2. United States	1,779	617,054	6,679	1,849,501	8,458	2,466,555	3,700,663
3. Norway	182	48,720	4,434	1,393,115	4,616	1,441,835	1,539,275
4. Germany	266	177,483	3,137	909,820	3,403	1,087,303	1,442,239
5. France	387	270,717	3,143	606,161	3,530	876,878	1,418,312
6. British possessions in America	324	82,238	4,073	1,119,564	4,397	1,201,802	1,366,278
7. Italy..............................	119	62,277	2,708	882,479	2,827	944,756	1,069,310
8. Sweden..........................	266	77,187	1,916	396,714	2,182	473,901	628,275
9. Spain and Canaries.......	237	103,038	1,524	291,680	1,761	394,718	600,794
10. Netherlands....................	76	66,024	913	269,114	989	335,138	467,186
11. Russia in Europe	191	67,098	1,924	233,188	2,115	300,286	434,482
12. Austria............................	81	61,631	408	173,852	489	235,483	358,745
13. British possessions in Oceania	264	60,438	878	170,577	1,142	231,015	351,891
14. Denmark	127	51,030	1,148	174,548	1,275	225,578	327,638
15. Japan	88	40,699	1,646	150,576	1,734	191,275	272,673
16. Finland	36	6,257	1,018	247,992	1,054	254,249	266,763
17. British possessions in Asia...............................	114	39,559	547	119,598	661	159,157	238,275
18. Greece	20	10,183	1,085	199,367	1,105	209,550	229,916
19. Belgium	34	42,327	24	9,493	58	51,820	136,474
20. Dutch possessions in Asia..................	40	17,350	314	62,589	354	79,939	114,639
21. Portugal, Azores, and Maderia	23	10,962	370	70,924	393	81,886	103,810
22. Spanish possessions in America	59	20,239	230	39,158	289	59,397	99,875
23. Hungary	2	426	170	74,596	172	75,022	75,874
24. Spanish possessions in Asia...............................	28	6,834	254	32,092	282	38,926	52,594
Other countries	28	59,858	1,131	247,745	1,259	307,603	327,319
Total *....................	8,385	4,565,866	52,696	13,722,525	61,081	18,288,391	27,420,123

* Although the number of ships is materially affected by the exclusion of those of 20 tons and upwards, yet as regards the tonnage the difference is but slight; as the total of all vessels over 20 tons is stated at 19,000,000, and for ships of 50 tons and upwards at more than 18,000,000 tons.

"In the above table, the principal maritime countries are arranged according to the amount of tonnage belonging to each, on the 1st January, 1879.

"The merchant navy of the United Kingdom takes the lead, and is represented by a tonnage of 2,000,000 steam and 400,000 sailing tons, making in computed tons a total of more than

11,500,000, which corresponds to a proportion of 43 per cent. of the merchant navies of the world. If, however, we take the whole of the British empire, the tonnage amounts to nearly 14,000,000, about half the total tonnage of the world.

" The United States ranks next with an aggregate burthen of rather less than 4,000,000 tons; then comes Norway, but with 1,500,000 tons only, followed closely by Germany, France, and the British possessions in North America. Italy comes next with a total of nearly a million tons, and Sweden and Spain appear also to be well represented in the matter of tonnage.

" The following statement gives the proportional tonnage to every 1,000 head of population, and in this case it will be observed that the order in which the countries appear differs from that in the preceding table :—

Countries.	To every 1,000 Inhabitants. Tons.
Norway	814
United Kingdom	339
British possessions in America	236
Denmark	168
Sweden	139
Greece	137
Finland	134
Netherlands	117
United States	77

" France, Italy, Spain, and Germany are represented by a tonnage varying from 30 to 33 tons per 1,000 head of population. It appears from the foregoing statement that it is the northern races which are the most interested in navigation, and among them the Norwegians and English. In the south, Greece, considering how thinly populated that country is, takes a very high rank in maritime affairs. We might continue our calculations by comparing the computed tonnage with the total area of the different countries, and even with the extent of their sea coasts; but on these points, and more especially the latter, there is an absence of reliable information.

" There is another fact clearly established by these statements, which is that England is incontestably entitled to the first place in steam navigation, seeing that her total steam tonnage exceeds two millions and a half, which is more than half the actual total of the whole steam tonnage of the world. The United States follows with 617,000 tons; France with 270,000; then comes Germany with 177,000 tons.

" The proportion of computed steam tonnage to the total computed tonnage is on the average about 50 per cent.; but this is exceeded in some cases, for instance, by England, for which it is established in the ratio of 66 per cent.; France, 57 per cent.; and Austria and Spain 51 per cent. In Italy, on the contrary, the proportion is as low as 17·5 per cent., and in Norway, 9·5 per cent. As regards sailing vessels, Norway is exceptionally well represented, having a proportion of 737 tons to every 1,000 inhabitants, thus comparing favourably with Canada, which has a merchant navy of about the same strength, the proportion in the latter case being at the rate of only 193 tons to every 1,000 inhabitants.

"A table which has particularly attracted our attention, and which appears to us to be one of the most interesting, is the following, showing the shipping of the most important ports, these ports being arranged in the order of their importance, as regards the amount of tonnage belonging to each:—

Ports.	Tonnage of Merchant Vessels over 50 Tons Register.			
	Steamships.	Sailing Ships.	Total.	
	Tons.	Tons.	"Actual" Tons.	"Computed" Tons.
1. Liverpool	523,182	1,077,827	1,601,009	2,647,373
2. London	570,308	619,764	1,190,072	2,330,688
3. Glasgow	379,783	353,015	732,798	1,492,364*
4. New York	206,788	533,312	740,100	1,153,676
5. Marseilles †	156,039	57,258	213,297	525,375
6. Hull	152,369	39,367	191,736	496,474
7. Newcastle	137,672	59,847	197,519	472,863‡
8. Sunderland	106,586	110,934	217,520	430,692
9. Hamburg	74,518	142,452	216,970	366,006
10. Bremen	59,655	157,284	216,939	336,249
11. North Shields	80,158	72,385	152,543	312,859
12. Boston and Charlestown	16,341	239,612	255,953	288,635
13. St. John (New Brunswick)	5,375	266,992	272,367	283,117
14. Greenock	35,179	170,065	205,244	275,602
15. Philadelphia	52,473	114,892	167,365	272,311
16. West Hartlepool	85,406	8,990	94,396	265,208
17. San Francisco	52,341	105,295	157,636	262,318
18. Havre	54,778	74,262	129,040	238,596
19. Barcelona	41,706	99,567	141,273	224,685
20. Genoa	34,221	115,905	150,126	218,568
21. Syra (1872)	6,968	187,652	194,620	208,556§
22. Leith	61,889	18,282	80,171	203,949
23. Trieste	56,836	28.290	85,126	198,798
24. Cardiff	54,164	21,059	75,223	185,551
25. Camogli	—	183,026	183,026	183,026
26. Amsterdam	36,484	64,974	101,458	174,426
27. Odessa	50,852	20,208	71,060	172,764
28. Bilbao	38,015	50,594	88,609	164,639
29. Copenhagen	42,845	35,861	78,706	164,396
30. Aberdeen	22,188	97,619	119,807	164,183
31. Yarmouth	437	161,505	161,942	162,816
32. Arundel	688	154,166	154,854	156,230
33. Dundee	26,635	68,937	95,572	148,842
34. Southampton	37,783	31,658	69,441	145,007
35. Bath	2,123	130,658	132,781	137,027
36. Gothenburg	22,744	67,076	89,820	135,308
37. Antwerp	41,934	7,652	49,586	133,454
38. Bergen	24,684	56,756	81,440	130,808

* Exclusive of Greenock.

† The following is the tonnage belonging to the principal French ports:—Dunkirk, 35,036; Boulogne, 9,888; Fécamp, 9,513; Havre, 129,040; Rouen, 9,838; Granville, 12,629; Saint Malo, 37,024; Saint Servan, 16,004; Nantes, 111,951; Saint Nazaire, 27,325; Bordeaux, 110,805; Arles, 10,981; and Marseilles, 213,297.

‡ Exclusive of North and South Shields.

§ The year 1872 is the latest for which it appears M. Kiaër was able to obtain any information respecting the tonnage of Syra.

"Thus from the preceding statement it will be seen that Liverpool and London are the two greatest shipping ports, their mercantile marine being equal, if not greater, in importance than the whole commercial fleets of countries like France, Germany, Norway, and Italy, which rank among the principal maritime powers of the world. London has the largest proportion of steam tonnage, but Liverpool greatly preponderates in sailing tonnage. The Glasgow steam tonnage and New York sailing tonnage approach the nearest to London, although the total belonging to these two ports is greatly inferior to that of London. Marseilles ranks fifth, immediately following the four ports already mentioned. Havre only appears in the eighteenth place; but here we may incidentally remark that this port contrasts favourably with Antwerp, with which it is frequently compared, inasmuch as the latter only takes the thirty-seventh place. On the other hand, Bremen and Hamburg take precedence of Havre, while Barcelona and Genoa are about on a par with it.

"The time at our disposal will not permit of our reviewing all the tables showing the distribution of the vessels classed according to tonnage; we must, however, make an exception in favour of the one showing number and tonnage of vessels over 3,000 tons register, which are all for the most part belonging to the great transoceanic lines.

"The number of these large steamships amounts to 593, and their distribution is as follows:—

Countries.	Vessels.	Tonnage.
1. Great Britain and Ireland	393	818,316
2. France	52	116,336
3. United States	48	97,870
4. Germany	40	75,223
5. Netherlands	17	34,470
6. Spain	11	21,435
7. Belgium	9	17,696
8. Russia	9	17,080
9. British possessions in America	4	7,559
10. Austria	2	3,362
Other countries	8	13,222
Total	593	1,222,569

"Here again it will be observed that not only does England, both as regards the number and tonnage of her vessels, rank far above all other countries, but in this table the preponderance is much greater even than that which is to be found in the general steam shipping table, that is, the one showing the tonnage of all steam vessels over 50 tons register. Another fact worthy of attention is that, although in the general table the United States ranks above France, in this case, the positions are reversed, and as the aggregate steam tonnage of France amounts to 270,717, of which 116,336 tons are composed of ships of more than 3,000 tons register, it is evident that the very prominent part played by this country in the steam navigation of the world is owing to the large transatlantic trade in which she is engaged."

II.—*The Territorial Acquisitions of Russia during the Reign of Alexander II.*

The following is translated from an article in the *Journal de St. Petersbourg* of $\frac{\text{29th May}}{\text{10th June}}$, 1881—Signed A. V.

A very interesting volume has recently been published by General Strelbitsky, who is already well known in the scientific world as the author of a valuable work on the area of the Russian Empire, showing the conclusions he has arrived at, after very careful study of the best maps and reference to the most reliable authorities, as to the actual extent of territory which has been annexed or ceded by Russia during the period comprised between 1855 and 1881. It will be unnecessary to exhaustively review the publication, as a short summary will suffice to show the general importance of this work, which cannot fail to be of interest to the student of Russian history.

In 1855, the year of the accession of the Czar Alexander II, the Russian Empire covered an area of 18,842,961 square versts, distributed as follows:—

	Versts.
Russia in Europe	4,801,087
„ Asia	12,878,174
„ America	1,163,700
	18,842,961

In 1856, 10,725 square versts of territory on the borders of the Danube and the Pruth were ceded by Russia in accordance with the terms of the Treaty of Paris. In 1858 the treaty of Aigun concluded with China on the 16th May, definitely fixed the frontiers of Russia and the Celestial Empire. By the terms of this international treaty, the whole of the left bank of the Amoor from the confluence of the Aigun as far as the Pacific Ocean, was recognised as Russian territory; while the right bank of the stream extending as far as the Oursouri remained in the possession of the Chinese Government, and the land comprised between the Oursouri and the sea was to be provisionally in the hands of both the contracting powers. By this demarcation the treaty of Aigun established the incontestable rights of Russia to the 507,552 square versts forming the province of Amoor. In 1859, by the subjugation of Daghestan, which was completed by the taking of Gounib, Russia in Europe benefited to the extent of an additional 15,401 square versts of territory. In the following year the Treaty of Pekin concluded on the

2nd November by General Ignatieff definitely settled the question of the possession of the right bank of the Amoor from the Oursouri to the Ocean, a question which was left undecided by the treaty of Aigun, and this settlement gave to the Russian Empire the province of Oursouri, representing an extent of 282,610 square versts of territory. In 1861, in order to afford additional security to the Perovsky fort, our principal stronghold in Central Asia, which was left exposed to the frequent attacks of the half savage nomad populations, it was found necessary to build the fortress of Djulek, an important strategical position; for this purpose General Deboy stormed and captured Din-Kourgane; the result of the campaign which followed this act was a clear gain to the Empire of 11,944 square versts. During the year 1862, in view of the frequent depredations committed by the Khokan tribes on Russian territory, it being decided to have recourse to energetic measures to effectually put down these marauding raids, and to overawe the hostile tribes, an expedition under Colonel Kolpakovsky was sent against them; after several engagements, Tokmak, Pischpek, and Merke, were stormed and captured, thus placing an extent of 15,802 versts under Russian rule. In 1864 the Caucasian war was brought to an end by the submission of the mountaineers of the eastern shore of the Black Sea, and thereby Russia became confirmed in the possession of about 47,069 square versts, 32,088 of which were in Europe and 14,981 in Asia. In the same year our possessions in Central Asia were very considerably increased; the result of an expedition under General Tchernaieff, which was undertaken for the purpose of assuring the security of our frontiers, being the capture of Aoulie-Ata, Turkestan, and Tchemkent, and the acquisition of 105,822 square versts of territory. In 1864 the international commission for the delimitation of the Russo-Chinese frontier in accordance with the terms of the treaty of Pekin of the 2nd November, 1860, fixed as the limits of Russian territory the southern fortresses of Tien-Schan, from the mountains of Khan Tengheri as far as Khokan, assigning to us the region of Narin. But the Kashgar sovereign having refused to accept the decision of the commission, and laid claims to the left bank of the Narin, the actual annexation of this territory by Russia was deferred till 1868. From the following year dated the gradual but steady increase in our possessions in Central Asia, the result of successive campaigns which were undertaken solely for the purpose of protecting our frontiers and putting down the numerous depredations committed by our aggressive neighbours. Thus in 1865 we gained an additional extent of 40,097 versts by the capture of Taschkent, Niaz-Bek, Tchinaz, Keleoutchi, and Pekent; in 1866, 30,149 by the occupation of Naou, Khodjent, Oura, Tube, Zaamine, and Djionzak; in 1867, 2,597, by the occupation of Yany-Kourgano; in 1868, 12,445 in Samarcande, Katty-Kourgan, and Ourgont, and 73,525 in the valley of the Narin, in the possession of which territory the commission of Tchougoutchak in 1864 had confirmed our right. In 1870, an additional 11,842 versts were obtained by the annexation of Zariavschane and Jagnaou, and in 1873, 257,703 versts, the result of the Khiva expedition, and the convention of the 12th August which took from that Khanate and assigned to Russia the territory comprised by the right bank of the Amou Daria, the delta of the stream and part of the Sea of Aral. Again, in 1874 there was an additional extent of 281,898 versts gained by the establishment of a regular administration in the Trans-Caspian zone, which had been composed in 1873 of the territory comprised between the Caspian Sea on the west, the Atrek on the south, Ouzboï on the east, and bounded on the north by a straight line drawn below Koungrad to the bay of Mertvoi Koultouk on the shores of the Caspian. While as a consequence of the brilliant successes of the Russian arms, the boundaries of the Empire were very considerably enlarged in Central Asia, in America on the contrary a large portion of territory forming part of our possessions there, together with the Aleoutian Islands, were in accordance with the conditions of the treaty executed on the $\frac{18\text{th}}{30\text{th}}$ March, 1867, handed over to the United States. This cession of territory reduced the actual extent in the possession of the Empire by 1,163,700 square versts.

In 1875 by the treaty of $\frac{25\text{th April}}{7\text{th May}}$, Japan ceded to Russia that portion of the island of Saghalin hitherto under Japanese rule, and representing an area of 29,500 versts, in exchange for the Kourile archipelago, measuring about 4,340 versts. In the same year the Khan of Khokan, Nasr Eddin, after his defeat at Makhral, signed a treaty of peace agreeing to hand over to Russia 17,670 versts of territory situated on the right bank of the Syr Daria and the Narin. But the war party in the Khanate refusing to recognise their defeat, and insisting upon continuing the war, deposed Nasr Eddin, and appointed as his successor Poulat Bek, who resumed hostilities, carrying on a war which was only terminated by a brilliant victory of General Skobeleff at Andidjan, and resulted in the military occupation of the rest of the kingdom and the end of its political existence. By this occupation and the expedition of Alai the Empire benefited in 1876 to the extent of 59,561 square versts. In 1878, Article 45 of the treaty of Berlin restored to Russia that portion of Bessarabia, covering an area of 8,128 versts, which was ceded in 1856, and by the terms of Article 58, Turkey recognised the right of Russia to the possession of the provinces of Kars and Batoum, with a superficies of 22,678 square versts.

The preceding figures may be briefly summarised in the following table :—

Years.	Territory Annexed.	
	In Europe.	In Asia.
	Square versts.	Square versts.
1858	—	507,552
'59	15,401	—
1860	—	282.610
'61	—	11,944
'62	—	15,802
'63	—	—
'64	32,088	120,803
'65	—	40,097
'66	—	30,149
'67	—	2,597
'68	—	85,970
'69	—	—
1870	—	11,842
'71	—	—
'72	—	—
'73	—	257,703
'74	—	281,898
'75	—	47,170
'76	—	59,561
'77	—	—
'78	8,128	22,678
'79	—	—
1880	—	—
Total	55,617	1,778,376
	1,833,993	

Years.	Territory Ceded		
	In Europe.	In Asia.	In America.
	Square versts.	Square versts.	Square versts.
1856	10,725	—	—
'57	—	—	1,163,700
'75	—	4,340	—
Total	10,725	4,340	1,163,700
	1,178,765		

It would therefore appear from the foregoing statement that, deducting the extent of land ceded, the Russian Empire has actually acquired in Europe and Asia, in the period comprised between the years 1855 and 1881, a total of 1.818.928 versts, 44.892 of which are in Europe, and 1.774.036 in Asia. But on the other hand a large extent of territory amounting to 1.163,700 versts, forming part of the Russian possessions in America, were ceded to the

United States Government, thus leaving a total gain of 655,228 versts to the Empire. On the 1st January, 1881, Russia had an area of 19,498,189 versts, distributed as follows:—4,845,979 versts in Europe, and 14,652,210 in Asia. These figures are exclusive of the province of Kouldja, covering an area of 58,009 versts, for the possession of which, negotiations had been for some considerable time carried on with the Chinese Government, represented by the Marquis Tseng at St. Petersburg, negotiations which resulted in a treaty shortly to be ratified by both powers. It appears also that in the statement given by General Strelbitsky of the total extent of territory acquired, the country of the Tekke Turcomans, which after the taking of Gheok Tépé was annexed by Russia, and which comprises in fact the Trans-Caspian province, is not included; the conclusion therefore is that the calculations made by him are not strictly accurate, inasmuch as the figures he gives as representing the actual superficies of the Empire are certainly understated. As we wish merely to confine ourselves to a short notice of General Strelbitsky's work, we will not go very deeply into the question of the very great importance of Russian territorial aggrandisement during the period 1855-81; one fact however is worthy of notice, that these acquisitions which in Europe restored to Russia a portion of the national soil ceded in 1856, and in Asia had a very considerable influence over the advance of civilisation, have exceeded in importance those of any reign since that of Peter the Great; and while these acquisitions, by their extent, shed a lustre over the Russian arms, which so successfully promoted a career of conquest abroad, they may also lay claim to the rare merit of not being inspired by schemes of ambition and mere love of conquest, but solely for the spread of intelligence, the interests of peace, and to assure the benefits of civilisation to a people hitherto plunged in ignorance and barbarism. In conclusion it may be added that M. Strelbitsky briefly sketches a history of all the facts in connection with the successive conquests, accompanying it with texts of the actual treaties, and three excellent maps, which show at a glance the increase of power during the reign of a sovereign for whom Russia will ever retain a tender remembrance.

III.—*Turkish Official Statistics.*

We extract the following from the *Journal of the Society of Arts* of 12th August, 1881:—

"Two interesting and noteworthy subjects appear in the *Saalnamí*, or Official Almanack in Turkish, of 1296 (1881), a Year Book published at the Ministry of Public Instruction. The one is a statistical account of the exports and imports in Turkey proper for the year 1294 (1878), and the other is a census of the male population of the empire, as well as the enumeration of dwellings in each vilayet. The value of the former is particularly enhanced in consequence of the detailed statement of the commercial movement which took place with each country separately with which Turkey stands in commercial relations, and because it is the first work of the kind published by the Government. It will be observed that England figures in these accounts for over $\frac{11}{24}$ths of the entire amount.

"Bearing in mind too that the general commercial movement, as shown in the following table, cannot be taken as a normal standard of the commerce of this country, 1878 was the year when the Turco-Russian war was terminated; a great part of the Mussulman able male population were kept under arms for two consecutive years, which deprived agriculture of its hands; while some of the richest provinces of the empire were devastated by the war, locusts, and famine, this must have caused a diminution in the general exchange of at least one-third. The second part, viz., the census of the population, although incomplete, is yet interesting in so far as it gives an approximate idea what the population of Turkey proper is, or, at all events, what the *Saalnamí* assumes it to be.

"Without entering into the accuracy of the following items, I will merely confine myself to reproduce the statements of the *Saalnamí*:—

TABLE I.—*Statement of Imports and Exports for the Year* 1294 (1878).

Names of Countries.	Imports.		Exports.	
	Value of Merchandise.	Custom House Duty Levied.	Value of Merchandise.	Custom House Duty Levied.
	Piastres.	Piastres.	Piastres.	Piastres.
Spain	2,461	245	252.441	2,272
England	971,067,606	70,238,401	352,177,010	3,172,403
Austria, Hungary	282,515,715	20,350,786	91,975.996	737,778
Italy	56,992.450	3,815,408	14,236 884	128,233
Belgium	8,075.290	581,120	6,888	62
America	41,629,333	2,997,209	9,112,633	82.013
Persia	54,909.960	8,665,008	5,255,044	163,380
Russia	142,390,942	10,259,417	34,375,036	310,289
France	325,292,148	23,423,056	256,560,576	2,309,142
Holland	11,007,695	793,026	3,351,649	30,165
Greece	31,901,739	2,512,914	32,163,140	306,042
Egypt	—	—	48,439,008	3,478,488
Tunis	797,184	57,297	139,835	10,018
Roumania	62,047,596	3,157,322	563,757	40,029
Samos	196,950	14,402	—	—
Bulgaria	7,768,060	559,299	348,461	25,057
Sweden	509,465	36,681	1,888	17
Prussia	2,483,399	252,955	390,239	3,513
Germany	1,328,132	108,334	—	—
Servia	6,361	458	—	—
Total piastres ...	2,000,922,486	147,823,338	839,350,485	10,798,901
Or lira Turca ...	20,009,224 86c.	1,478,233 38c.	8,393,504 85c.	107,989 1c.

"Gross total of exportation and importation, lira Turca 28,402,729 71c.; duties levied, lira Turca 1,586,222 39c. In ordinary times the external commercial intercourse of Turkey can certainly not be less than 40,000,000*l.*

TABLE 2.—*Statement of the Number of Male Population and Buildings.*

Names of Vilayets.	Number of Male Population.	Number of Houses.
Constantinople*	—	69,984
Broussa	503,033	204,170
Syria†	382,350	158,851
Archipelago‡	146,579	69,413
Djanik and Trebizond	459,122	187,745
Angora	342,000	127,100
Sivas	327,666	124,998
Aleppo	308,895	130,000
Adana	170,000	68,660
Ismid and Bigha (dependency of Constantinople)	125,832	52,419
Konia	390,098	157,124
Castamouni	315,111	109,933
Aidin (Smyrna)§	387,189	191,045
Diaribekir§	324,843	138,920
Jerusalem	90,192	29,516
Yanina	389,251	147,147
Salonika	452,623	182,260
Terhala	123,183	49,257
Monastir§	272,659	105,771
Cossova§	181,310	59,105
Adrianople	163,126	134,605
Erzeroom§	176,850	65,726
Van§	17,310	5,843
Bitlis§	49,096	21,529
Total	6,098,318	2,583,121

* No census yet made. † Exclusive of Hauran.

‡ Some islands not completed yet. § Not completed yet.

"Assuming the male population of Constantinople to be 350,000, and allowing for the incomplete census of certain vilayets, as well as Bagdad, Tripoli in Barbary, &c., the entire population of Turkey proper, may very likely amount in round numbers to *sixteen millions*, including the female sex.

"S. STAB,
"*Corr. Memb. Society of Arts.*

"Constantinople and Smyrna, 27th May, 1881."

IV.—*Bankruptcy Statistics.*

THE following is taken from the *Times* of the 19th May, 1881:—

"Considering how much bankruptcy has been discussed of late years, it is, perhaps, surprising that hardly any attempts have been made to set out the subject statistically. Statements are made on particular points, such as the increase of the number of proceedings in recent years, and especially the increase of liquidations and compositions compared with bankruptcy proper; or we are told how compositions have been increasing in number and the quality of the dividends deteriorating; or we have an estimate like that of Mr. Chamberlain, that the losses by bankruptcy amount at the present time to 25 million pounds a-year. But there is no attempt to answer the main questions in a statistical view, such as the tendency of bankruptcy to rise or fall in particular years apart from legislation; the amount of losses in average and not merely in exceptional years; the results of different systems of administration, whether like or unlike; and the precise effect a given piece of legislation may have. To state these questions is to show that the subject requires somewhat nice handling statistically, and in this view even Mr. Chamberlain's recent speech, though he had all the resources of the Board of Trade at his command, was hardly sufficient. The present is an attempt to some extent, as far as the official figures carry us, and with the help of some unofficial figures, to fill up the void.

"Is bankruptcy in this country increasing or diminishing? The usual answer is, increasing; the most accessible figures, those contained in the reports of the controller in bankruptcy, being referred to for proof. From 1870 to 1879, a period of ten years, it is said, there is a steady and even rapid increase. But any one at all acquainted with statistics would immediately say that such a period is too short to justify any conclusion. Bankruptcy, it is plain, is likely to vary according to the ups and downs of trade—to increase in years of adversity and diminish in years of prosperity; and every business man knows it does so vary, not only in this country, but in the United States and other countries where credit is at all developed. The above ten years' period, however, begins with years of prosperity and ends with years of adversity, which would be quite sufficient to account for a large increase of insolvencies, quite apart from any changes of legislation facilitating them or the reverse. To form any idea of national progress or the reverse, we must go back a good deal further. Unfortunately, there are no good official statistics prior to 1861. Before that the statistics were most incomplete. Since 1861, however, it may be considered that legislation has been substantially the same as far as it was likely to affect the number of cases coming into court; and since then the totals of all such cases, classing bankruptcy, liquidation, and composition together, have been:—

Year.	Number of Cases.	Year.	Number of Cases.
1862	12,314	1871	6,280
'63	11,486	'72	6,835
'64	10,828	'73	7,489
'65	13,509	'74	7,919
'66	13,584	'75	7,889
'67	15,906	'76	9,249
'68	17,240	'77	9,533
'69	15,064	'78	11,450
'70	5,002	'79	13,132

"We venture to say that any statistician would conclude from such figures that bankruptcy is not increasing. The whole period embraced is eighteen years, and, dividing it into two equal parts, it is plain that the average is higher—very much higher—in the first than in the second nine years. The average in the first nine years is, in fact, as high as 12,800, and in the second nine years it is rather less than 9,000. It will also be observed that, as surmised beforehand, there is an obvious rise and fall in bankruptcy. The highest years in the first column are 1867 and 1868, and in the second column 1878 and 1879; and about the lowest years in both are 1862-63 and 1872-73, the rise and fall thus extending over a period of just about ten years. To conclude, therefore, from bankruptcy statistics of ten years—ending with years of adversity and beginning with years of prosperity—that bankruptcy is increasing is certainly a mistake. The real fact can only be ascertained on a comparison of two ten years' periods or more; and when we apply this method, as we have seen, we can only conclude that the cases of bankruptcy are really diminishing. Judging from some unofficial figures supplied by Messrs. Perry and Co. to the royal commission of 1854 on bankruptcy, we should say that the diminution has been going on since 1840; but in the absence of one continuous set of figures, we should not lay stress on this. It is more to the purpose, perhaps, to point out that such a diminution of bankruptcy as we describe would correspond with other facts of our commercial progress during the last half century. In all that period wealth has been increasing, and the proportion of bills to the trade of the country—that is, the proportion of business carried on with borrowed money—has been diminishing. In circumstances like these, bankruptcy cannot but be a diminishing quantity from period to period. We believe, also, that there has been some progress in commercial morality generally, which would be a fact corresponding to the diminution of crime and of other social diseases: but without dwelling on this, we may rest our case as to the tendency of insolvency, irrespective of legislation, to diminish on the figures of the number of cases we have cited.

"This comparison is defective in one way. We do not know whether the aggregate amount of liabilities and assets has increased or diminished in proportion to the number of cases. But in the absence of any evidence, we cannot assume that the average magnitude of bankruptcy cases has been increasing, though the number has been diminishing. The experience since 1870 would seem to show that in unprosperous years a certain number of cases of unusual magnitude swell the average, which would otherwise be lowered by an increase at the same time of the very small cases. But we must assume that such variations occurred in former ten years' periods as well as in the last ten years. The only definite fact we have is that the average case in bankruptcy, liquidation, and composition has ranged between the limits of 600*l.* and 900*l.* for assets, and 2,000*l.* to 3,000*l.* for liabilities between 1871 and 1879, variations too small and covering too short a period for any conclusions to be drawn from them as to the tendency of average bankruptcies to increase or diminish in magnitude.

"The results of the inquiries so far should help us in answering the next question. The periodicity of bankruptcy, and the fact that there is a ten years' period being established, we must clearly recognise these facts in estimating the economic loss of bankruptcy at the present time. We must not take one or two unprosperous years, as Mr. Chamberlain appears to have done in his speech, and form an estimate from these alone, but we must strike the average of the last ten years' period. When we do this, we see in a moment that Mr. Chamberlain's estimate of 25 million pounds was only that of a *maximum* year. Looking at the controller's figures, we find that only in three years out of the ten, viz., 1875, 1878, and 1879, did the total liabilities in bankruptcy, without deducting anything for assets at all, exceed 25 million pounds, while in most of the other years the total liabilities, again without deducting anything for assets, did not exceed 20 million pounds, and in two years were very little over 14 million pounds. The average annual loss on any proper statistical reckoning, therefore, must be a good deal less than 25 million pounds. The following is an attempt to work out the loss in detail for each year since 1871, and the average for the whole period, our plan being to reckon the assets in bankruptcies and liquidations at one-half only of the amount stated by the controller, and the compositions at the full amount, the so called assets in these compositions being, in fact, the dividend the creditors are to receive:—

Estimate of the Losses sustained by Creditors through Bankruptcies, Liquidations, and Compositions in the Years of 1870-79.

[Amounts in thousands of pounds, 000's omitted, 17,456, = 17,456,000*l.*]

	Liabilities.	Assets.		Net Loss, *i.e.*, Liabilities less Amount of Net Assets in Col. 3.
		Gross Amount.	Net Amount, *i.e.*, Total Amount of Compositions and Half Assets in Bankruptcies and Liquidations.	
	£	£	£	£
1870	17,456,	5,381,	3,280,	14,176,
'71	14,158,	4,207,	2,702,	11,456,
'72	14,287,	4,314,	2,675,	11,612,
'73	19,184,	5,988,	3,583,	15,601,
'74	20,136,	5,431,	3,457,	16,679,
'75	25,533,	7,332,	4,552,	20,981,
'76	20,873,	6,165,	3,956,	16,917,
'77	19,479,	5,989,	3,737,	15,742,
'78	29,973,	9,023,	5,329,	24,644,
'79	29,678,	10,193,	6,253,	23,425,
Total	210,757,	63,973,	39,524,	171,233,
Avge. of 10 yrs.	21,075,	6,397,	3,952,	17,123,

"Thus there are only two years, 1878 and 1879, in which the annual loss, on a very strict reckoning, approaches the figure of 25 million pounds stated by Mr. Chamberlain. There are also two years, 1871 and 1872, in which the loss can only be reckoned at less than half that amount, or 11½ millions only. And the average for the whole period is considerably under 20 million pounds, being 17,123,000*l.* only. The average annual loss at the present time cannot, therefore, be put higher than the latter figure, and if it is true, as there is reason to believe, that bankruptcy diminishes from period to period, the average at the present time must be still less. Some addition should of course be made, in making up statistics of the United Kingdom, for the losses arising through Scotch and Irish bankruptcies, but these would not largely swell the total.

"Of course, it is a very serious matter that the loss should be so great as this. As Mr. Chamberlain properly pointed out, it is apart from the loss arising through companies liquidating, and though we apprehend this would not make a great difference in amount, it would still make some addition to the loss of the community, through insolvency. But even taking the average annual loss, including companies, at 20 million pounds, still the amount is not a large one, whether we compare it with the aggregate turn-over of our trade, or the income of the country. On the turn-over of our trade, which cannot be short of 6,000 million pounds a-year, the sum of 20 million pounds is only about one-third of 1 per cent. On the annual income of the country, which may be estimated at 1,200 million pounds, the sum is rather less than 2 per cent., and on the gross income of the country assessed to income tax, it amounts only to 4 per cent. Compared with the other charges and difficulties traders have to meet in their business enterprises, these percentages are obviously not serious. Economically, a tax of 2*d.* per lb. on sugar, would be just as hard on the community. As we have always insisted, the real mischief of bankruptcy is not the direct economic loss it entails, but the deterioration of credit, and the social misery it brings with it, which have widespread, indirect consequences that cannot be measured. Nor can we hope that much good will ensue from diminishing the direct economic loss compared with what will follow indirectly. Suppose the annual loss were diminished one-half, which would be an enormous success, the direct gain would be no greater than the remission of 1*d.* per lb. on sugar, which the community hardly felt when it took place. But if the direct gain would be little, the indirect benefit of legislation which had a much less direct effect would probably be immense.

"Passing to another part of the subject, viz., the different systems of administering bankruptcy, it is interesting to observe the singular uniformity of results. It appears to be almost a law of nature that bankruptcy assets should only yield about two-thirds of what the debtors estimate when the bankruptcy begins, that the cost of administering these assets should average about a third of the amount, and that the proportion of expenses should vary inversely to the size of estates, being highest in small estates, and lower as the estates increase in magnitude. Whether we take the Scotch system, which is so often lauded as the best, or the present bankruptcy system in England, or former systems which have been tried, it is always some such result as we have stated that comes out. To take especially the point of the proportion of expenses to administration, we find that in Scotland, in 1877 and 1878, the total amount of estates recovered in bankruptcies closed was

1,298,000*l.*, and as the preferential debts were 344,000*l.*, what are called the assets in bankruptcy according to the English definition would be 954,000*l.*, on which the costs of 293,000*l.* would come almost exactly to 30 per cent. We believe the real cost should be higher than this, as Mr. Chamberlain hinted in his speech, the Scotch plan of making up the statistics dissimulating the expenses; but the proportion of 30 per cent. is good enough for practical purposes. In the English bankruptcy system according to the report of the controller of bankruptcy, the corresponding figures for bankruptcies closed in 1879, were, assets recovered 253,000*l.*, expenses 95,778*l.*, proportion of expenses to assets 37·90 per cent., which is superficially not so good as that of the Scotch system, but is really better, the average estate in Scotland for the above two years being about 1,500*l.*, while in bankruptcy in England in 1879 it was barely 250*l.* Similar, if not better, results were apparent, as we have said, in the old English bankruptcy systems, as will be seen on reference to the reports of the commissions of 1840 and 1854. One official assignee, Mr. Edwards, with average assets of 508*l.* only, worked at a cost of 36½ per cent., and a commissioner, Mr. Fane, with estates averaging over 1,000*l.*, worked at a cost of 18 per cent. only, this last being a better result obviously than the Scotch system. And cases were adduced before the committee of 1865, in which large estates were worked at a cost of 10 per cent. The important point to keep in mind in these matters, as the controller in bankruptcy is constantly noticing, is the size of the estate; for on this mainly, and not on the difference of systems, the proportion of expenses depends. The point is most material as qualifying any hopes which may be entertained as to the effect of bankruptcy legislation in diminishing expenses, increasing dividends, and so making creditors more contented. No such effects on the average can be expected. Looking at the preceding table of liabilities and assets, it will be seen that the average dividend represented by the present proportion of effective assets to liabilities is only 4*s.* per pound, or rather less. Suppose the average proportion of expenses to be diminished from 30 to 20 per cent., which would be a great and unhoped for improvement, this would increase the effective assets by 10 per cent., in other words, would raise the average dividend from 4*s.* to 4*s.* 5*d.*, per pound. To put the matter even more strongly, suppose that on large estates where the proportion of expenses is now as low as 10 per cent., good legislation and administration reduced them one-fourth, or from 10 to 7½ per cent., the increase of the effective assets would only be 2½ per cent., and an average dividend of even 10*s.* would only become 10*s.* 3*d.* These are obviously not results about which creditors are likely to grow enthusiastic. Directly then, we should say any bankruptcy legislation however good, will be disappointing. Creditors in particular cases will have no palpable gain from it. The real benefits of a good bankruptcy law in this respect, as well as generally, will be mainly indirect in the inducement to debtors to stop payment while they have a fair proportion of assets in hand, and not in any visible and great reduction of costs as compared with what is now expended when bankruptcy actually occurs.

"Thus, while it is expedient and necessary to improve bankruptcy administration, as well as the whole bankruptcy law, the exact benefits to be produced are hardly of the kind which are popularly anticipated. We trust what we have written will contribute to the formation of a sounder opinion on the subject, and facilitate the proper working of a Bankruptcy Act when it is passed as well as its passage through Parliament. There has been much failure in past times, just because little was known as to the exact measure of the evils to be dealt with, and of the improvement to be reasonably expected. Now there can be no excuse for unreasonable hopes beforehand, or unreasonable disappointment afterwards."

V.—*Price of Best Coal in Port of London*, 1832-80.

The following return, moved for by Mr. John Talbot, is No. 225 of Reports and Papers issued to the House of Commons in the Session of 1881:—

Return "showing the Annual Average Price (exclusive of City or other Dues) of the Best Coals at the Ship's side in the Port of London, at per Chaldron, from 1820 *to* 1832, *and at per Ton from* 1832 *to* 1880."

Year.	Per Chaldron.		Year.	Per Ton		Year.	Per Ton.		Year.	Per Ton.	
	s.	*d.*		*s.*	*d.*		*s.*	*d.*		*s.*	*d.*
1820	32	5	1832	20	10	1849 ...	16	7	1866	19	–
'21	33	2	'33	17	2	'50	16	–	'67	19	8
'22	32	6	'34	19	5	'51 ...	15	–	'68	17	7
'23	35	9	'35	20	10	'52	15	5	'69	17	8
'24	34	6	'36	21	10	'53 ...	20	1	'70	17	5
'25	33	10	'37	22	11	'54	22	8	'71	18	2
'26	30	2	'38	23	5	'55	20	10	'72	23	10
'27	31	4	'39	22	7	'56	17	10	'73	31	3
'28	31	–	'40	22	6	'57	17	7	'74	24	8
'29	27	11	'41	21	3	'58 ...	17	4	'75	22	9
'30	29	2	'42	20	1	'59 ...	17	3	'76	20	2
'31	26	4	'43	19	1	'60 ...	19	–	'77	18	5
			'44	21	9	'61 ...	18	5	'78	16	10
			'45 ...	18	1	'62	16	6	'79	16	11
			'46	16	10	'63	17	1	'80	14	11
			'47	19	9	'64	19	–			
			'48	17	1	'65	19	1			

J. B. Scott,
Deputy Clerk and Registrar of Coal Market.

Coal Market Registrar's Office,
Coal Exchange, 5th May, 1881.

VI.—*Census of Congregations of the City Churches and Chapels.*

The following is taken from the *St. James's Gazette* of 13th June, 1881:—

"In another page we print a census table of a rather remarkable character, which will not be found in any official return. It was taken on Sunday, 1st of May, and it shows how many people attended service in all the city churches, the number of persons each church can accommodate, how the various congregations were made up, the cost of ministration, so far as the income of the clergy goes, with some other detailed information of an interesting and surprising character. From this table it will be seen that on this 1st May, deducting officials and their families, choristers, school children, and so forth, there was in one church a genuine congregation of 10 persons; in another of 9; in another of 8; in another of 4; in another of 2. Further, it will be seen that of 57 city churches only 11 had a congregation (with the above-mentioned deductions) of over 100 persons, and that in more than half the churches there were not 50 of such worshippers. Next, it may be noted, there were 706 choristers to sing to a total congregation (always with the aforesaid deductions) of 3,853—a very large number of these choristers being hired; that the total income of the clergy who ministered to the total general congregation of 3,853 was, according to one authority, more than 36,000*l.*; according to another nearly 42,000*l.* After looking at these and some other interesting figures, attention should be given to the returns of attendance at the Nonconformist chapels on the same day, from which it appears that the total general congregation in 15 chapels nearly equalled the congregations in the 57 churches.

"With such figures as the above before them, it is not surprising that many good churchmen are discontented. They reflect upon the fact that year by year the resident population of the city diminishes (the last census shows that it has fallen in ten years from 76,000 to 53,000—round numbers), they see new populations crowding the suburbs, where sufficient church accommodation can only be supplied by constant demands on their pockets, and they grumble at the maintenance of these costly empty churches—three or four of them in an area of a few hundred square yards. And nobody can wonder at it. Of course we know that it is very difficult to face the demand for abolishing them in any considerable measure. For one thing, most of these churches are fine fabrics—some of them very beautiful; and it is not in human nature (with any sentiment in it or any feeling for art) to contemplate their demolition with complacency. It is sometimes asked too, whenever the question is raised, whether we are quite sure that the population will never return to London; but that contingency need not be regarded much, for though many churches have already been taken down of late, more remain than would be needed to accommodate five times the present population, which meanwhile is not increasing but the contrary. The main difficulty is as to the maintenance or destruction of the churches as works of art and as landmarks of history, and no doubt it is a formidable one. Nevertheless, no sensible man can look at the table we print to-day without wondering whether some at least of these edifices might not be spared, and their ministrants and their incomes elsewhere employed.

Census of Congregations of all the City (London) Churches and

Church.	Clergy.	Income.		Capacity, as per Ordnance Map.
		Per Clergy Directory.	Per Clergy List.	
		£	£	
ST. PAUL'S CATHEDRAL	—	—	—	3,600
THE TEMPLE CHURCH	—	—	—	600
Allhallows, Great Tower Street	J. Thomas	2,000	956	500
,, the Great, Thames Street	J. R. Stock	560	458	400
,, Lombard Street	C. Mackenzie	675	595	510
,, London Wall	C. Lacy	1,700	1,700	150
Christ Church, Newgate Street	M. Gibbs	475	476	2,000
Holy Trinity, Gough Square	W. C. Heaton	350	350	900
Mercers' Chapel	A. Veysey			
St. Alban, Wood Street	H. J. Cummins	680	680	350
,, Alphage, London Wall	R. W. Bush	925	850	200
,, Andrew, Holborn	H. G. S. Blunt	900	950	1,400
,, ,, St. Mary Axe	Bishop How	2,400	2,400	500
,, ,, Doctors' Commons	C. F. Chase	329	246	1,000
,, Ann and St. Agnes, St. Ann's Lane	J. V. Povah	500	500	350
,, Augustine, Old Change	W. H. Milman	642	642	500
,, Bartholomew, Moor Lane	W. Denton	450	330	600
,, ,, West Smithfield	J. Abbiss	850	680	553
,, ,, the Less	W. Ostle	13	13	150
,, Benet, Paul's Wharf	E. Jones	300	—	400
,, Botolph, Aldgate	J. M. Roberton	300	300	900
,, ,, Aldersgate Street	S. Flood Jones	370	393	800
,, ,, Bishopsgate ,,	W. Rogers	1,200	1,650	850
,, Bride, Fleet Street	C. Marshall	500	460	1,300
,, Clement, Clement's Lane	W. J. Hall	350	290	176
,, Dunstan in the East	J. L. Ross	550	560	700
,, ,, West	W. Martin	496	490	550
,, Edmund, Lombard Street	P. G. Hill	350	306	200
,, Ethelburga, Bishopsgate	J. M. Rodwell	1,050	1,065	250
,, George, Botolph Lane	M. McColl	380	350	200
,, Giles, Cripplegate	P. P. Gilbert	1,000	1,580	506
,, Helen, Bishopsgate	J. E. Cox	1,250	375	750
,, James, Garlickhithe	G. L. Gibbs	650	580	800
,, Katherine, Fenchurch Street	W. H. Dickinson	1,500	1,500	240
,, ,, Leadenhall ,,	W. M. Whittemore	583	380	500
,, Lawrence, Old Jewry	M. S. A. Walrond	680	680	400
,, Magnus, Lower Thames Street	A. J. M'Caul	580	689	600
,, Margaret, Lothbury	H. W. Brooks	968	950	800
,, ,, Rood Lane	J. L. Fish	830	214	450
,, Martin, Ludgate Hill	J. T. White	266	266	750
,, Mary, Abchurch Lane	R. B. Gibson	584	206	200
,, ,, Aldermary	L. B. White	800	800	600
,, Mary-at-Hill	A. Trower	400	413	400
,, Mary-le-Bow	M. H. Vine	1,000	458	400
,, Mary Magdalen, Old Fish Street	R. S. Bower	316	316	400

* Paid or *partly* paid for their services.

Chapels. Taken on the Morning of Sunday, 1st *May,* 1881.

Parochial Population as per Census 1871.	Total Present at Service.	Analysis of Congregation, exclusive of St. Paul's Cathedral and Temple Church.							
		Officials and their Families.	Choristers.	Poor attending for Bread or Money.	School Children.	General Congregation, exclusive of Officials and their Families, and Poor attending for Relief.			
						Men.	Women.	Children	Total.
—	1,950	—	—	—	—	—	—	—	—
—	655	—	—	—	—	—	—	—	—
1,065	57	8	9*	—	—	15	14	11	40
256	110	9	10	—	24	33	29	5	67
815	89	11	14*	5	16	16	23	4	43
805	67	5	37	—	—	6	12	7	25
1,941	174	17	16	—	80	20	24	17	61
2,741	118	7	13*	—	—	16	32	50	98
			Closed	for repairs					
394	84	6	20	—	—	17	29	12	58
274	45	12	8*	1	13	6	4	1	11
3,818	607	26	24*	25	92	56	352	32	440
580	145	7	24	—	10	29	42	33	104
1,732	192	10	—	5	80	32	43	22	97
356	123	9	—	—	83	4	16	11	31
716	74	7	18*	—	9	10	24	6	40
2,637	53	6	13	—	—	8	20	6	34
3,114	78	6	—	6	23	7	7	29	43
747	83	10	8*	—	—	24	29	12	65
—	31	5	8	—	—	9	9	—	18†
8,433	427‡	22	20	10	223	46	71	35	152
3,512	214	10	22*	40	31	30	47	34	111
6,107	269	17	28*	—	—	65	105	54	224
5,060	181	24	—	—	30	40	48	39	127
323	125	7	23*	2	19	24	32	18	74
669	32	8	7*	9	4	1	3	—	4
2,316	143	27	13	30	—	16	51	6	73
297	79	8	18*	4	9	12	15	13	40
315	74	5	17	—	—	26	20	6	52
316	48	6	—	—	12	3	3	24	30
6,257	410	24	28*	20	212	45	51	30	126
541	78	9	13*	6	—	21	20	9	50
581	102	6	15	18	30	8	15	10	33
317	36	7	10	—	6	4	7	2	13
2,038	187	15	20	18	80	13	25	16	54
298	229	10	34	—	—	65	89	31	185
649	103	5	—	—	14	40	25	19	84
316			Closed	for repairs					
229	62	4	16*	—	—	21	17	4	42
730	17	5	—	—	—	4	4	4	12
322	65	8	18*	—	11	9	14	5	28
437	141	9	20	—	—	51	38	23	112
616	49	13	16*	—	—	6	6	8	20
369	45	7	—	—	—	12	16	10	38
1,250	80	11	—	—	29	20	11	9	40

† Welsh service. ‡ Taken 15th May.

Census of Congregations of all the City (London) Churches and

Church.	Clergy.	Income.		Capacity, as per Ordnance Map.
		Per Clergy Directory.	Per Clergy List.	
		£	£	
St. Mary, Aldermanbury	C. C. Collins	250	250	300
,, ,, Woolnoth	Prebendary Irons	800	438	650
,, Matthew, Friday Street	W. S. Simpson	390	254	250
,, Michael, Basinghall ,,	J. B. M'Caul	250	250	300
,, Michael, Cornhill	W. Hunt	950	793	500
,, ,, College Hill	T. Darling	268	242	200
,, ,, Wood Street	Vacant	255	260	400
,, Mildred, Bread ,,	O. P. Vincent	280	287	—
,, Nicholas, Cole Abbey	H. Stebbing	712	680	350
,, Olave, Hart Street	A. Povah	2,100	2,050	250
,, ,, Old Jewry	E. Forbes	900	733	400
,, Peter, Cornhill	R. Whittington	430	250	520
,, ,, Old Broad Street	J. H. Coward	800	800	650
,, Sepulchre, Snowhill	J. Jackson	550	550	2,000
,, Stephen, Coleman Street	J. W. Pratt	770	560	500
,, ,, Walbrook	W. Windle	627	332	400
,, Swithin, Swithin's Lane	E. Allfree	450	259	300
,, Vedast, Foster Lane	Church closed	330	300	300
		41,814	36,385	32,455
NONCONFORMIST CHAPELS.				
City Temple	Dr. Parker	—	—	2,300
Finsbury Chapel	Mr. Harborne	—	—	2,000
South Place Chapel	,, Conway	—	—	1,000
Weigh House ,,	,, Sandison	—	—	1,000
St. Mary, Moorfields	Canon Gilbert and others	—	—	2,200
Falcon Square	Mr. Evans	—	—	650
Fetter Lane	,, J. Belsher	—	—	800
Welsh Chapel	,, Jones	—	—	450
Wesleyan Preaching House	,, Sanderson	—	—	—
Bishopsgate Chapel	,, A. Griffith	—	—	800
French Protestant Church	,, Daugars	—	—	240
Dutch Reformed ,,	A. Van Scheltemer	—	—	100
Friends' Meeting House	Various	—	—	3,000
Moravian Chapel	Mr. J. A. Porter	—	—	750
Welsh Baptist Chapel	—	—	—	—
Haberdashers' Hall	Closed	—	—	—
Synagogue (Hambro) Fenchurch Street	—	—	—	240
Synagogue (Great), Aldgate	—	—	—	1,000
,, Bevis Marks	—	—	—	700
,, Great St. Helens	—	—	—	570
,, New Broad Street	—	—	—	470
		—	—	17,270

* Paid or *partly* paid for their services.

Chapels. Taken on the Morning of Sunday, 1*st May,* 1881—*Contd.*

Parochial Population as per Census 1871.	Total Present at Service.	Analysis of Congregation, exclusive of St. Paul's Cathedral and Temple Church.							
		Officials and their Families.	Choristers.	Poor attending for Bread or Money.	School Children.	General Congregation, exclusive of Officials and their Families, and Poor attending for Relief.			
						Men.	Women.	Children.	Total.
308			Closed for repairs						
331	65	7	10*	—	10	9	21	8	38
137	111	8	14	—	16	28	30	15	73
357	56	8	25	10	—	10	3	—	13
254	260	12	20*	5	7	115	78	23	216
208	33	6	7	—	12	5	3	—	8
194	44	7	5*	—	22	4	6	—	10
99	20	5	6	—	—	8	—	1	9
478	16	6	—	8	—	1	1	—	2
606	109	12	11	—	5	17	41	23	81
442	36	6	—	2	8	9	10	1	20
418	120	16	—	3	22	21	30	28	79
603	102	5	10*	—	46	12	19	10	41
3,701	201	18	24	—	46	44	36	33	113
2,674	147	10	—	—	40	32	53	12	97
179	42	7	—	—	—	15	18	2	35
346	43	10	14	—	—	7	5	7	19
295					Closed				
75.919†	6,731	571	706	227	1,374	1,227	1,796	830	3·853
—	1,304	25	24	—	—	714	436	105	1,255
—	865	9	40	—	300	189	251	76	516
—	460	8	8	—	—	183	249	12	444
—	446	12	8	—	—	181	200	45	426
—	370	10	50	—	—	157	119	34	310
—	269	10	17	—	—	75	86	81	242
—	116	5	—	—	35	24	32	20	76
—	114	2	—	—	—	89	23	—	112
—	105	4	10	—	—	32	30	29	91
—	89	12	—	—	20	20	15	22	57
—	79	8	—	—	—	38	29	4	71
—	64	5	—	—	—	16	34	9	59
—	49	—	—	—	—	26	19	4	49
—	47	4	—	—	—	11	8	24	43
—	22	1	—	—	—	16	4	1	21
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	4·399	115	157	—	355	1,771	1,535	466	3,772

† By census just taken 52,889.

VII.—*Statistics of the Newspaper and Periodical Press.*

The following particulars are taken from *May's British and Irish Press Guide for* 1881:—

"The following statistics represent the present condition of the Newspaper and Periodical Press of Great Britain and Ireland:—

"*Newspapers.*

"There are now 2,076 newspapers issued in the United Kingdom, distributed as follows:—

Metropolis	549	2,076
England	1,098	
Wales	65	
Scotland	183	
Ireland	163	
British Isles	18	

"The accompanying table will show the periods of their publication:—

When Published.	Number of Newspapers Published in						Total.
	Metropolis.	England.	Wales.	Scotland.	Ireland.	British Isles.	
Daily, morning	14	45	3	12	13	1	88
,, evening	14	48	1	10	5	—	78
Five times a-week	2	10	—	—	—	—	12
Three ,,	7	9	—	1	8	3	28
Twice a week	11	70	2	12	23	5	123
Monday	9	9	1	—	—	—	19
Tuesday	9	38	3	8	2	1	61
Wednesday	36	60	5	23	3	2	129
Thursday	39	73	9	13	10	—	144
Friday	139	323	24	26	14	2	528
Saturday	119	390	16	71	79	4	679
Sunday*	10	—	—	—	—	—	10
Twice a-month	12	—	—	—	1	—	13
Fortnightly	14	1	—	1	—	—	16
Monthly	104	15	—	5	5	—	129
Quarterly	2	—	—	—	—	—	2
Irregular and miscellaneous	8	7	1	1	—	—	17
Total	549	1,098	65	183	163	18	2,076

* Although there are ten journals recognised as Sunday newspapers (all published in the metropolis), as a fact there are but two—the *Observer* and the *Sunday Figaro*—published on Sunday alone, the others issuing editions on preceding or following days also.

"Noticeable features in the above list are the favour with which the last two or three days of the week are regarded as days of publication, and the large number of monthly newspapers issued in London—the increasing number of trade journals accounting in a great measure for the latter.

"The political bias of the Newspaper Press is exemplified below:—

Principles.	Number of Newspapers Published in						Total.
	Metropolis.	England.	Wales.	Scotland.	Ireland.	British Isles.	
Liberal	61	356	29	91	51	6	594
Conservative	30	257	10	25	44	3	369
Liberal Conservative	7	30	5	6	14	4	66
Independent or neutral	451	455	21	61	54	5	1,047
Total	549	1,098	65	183	163	18	2,076

"Of the whole number of newspapers (2,076) published in the United Kingdom, there are 54 which may be classed as religious, and representing the Church of England, Roman Catholic, Jewish, Baptist, Wesleyan, Society of Friends, Presbyterian, New Jerusalem Church, Unitarian, and other denominations.

"There are 132 newspapers regularly illustrated, and 11 occasionally illustrated; one contains coloured illustrations, and one is illustrated by means of photography.

"Six newspapers appear in the French language, including three published in the Channel Islands, three in German, one in Italian, and one in English, French, Portuguese, and Spanish; eleven are printed in Welsh, and one partly in Gaelic.

"The following classification exhibits the number of newspapers published at certain stated prices:—

Publishing Price.	Number of Newspapers Published in						Total.
	Metropolis.	England.	Wales.	Scotland.	Ireland.	British Isles.	
Halfpenny	14	86	2	29	5	1	137
One penny	187	750	41	122	54	7	1,161
Three halfpence	3	68	4	4	2	6	87
Twopence	67	110	15	14	48	3	257
Twopence-halfpenny	2	2	—	1	1	—	6
Threepence	51	21	1	4	32	—	109
Threepence-halfpenny	1	2	1	2	2	—	8
Fourpence	39	3	—	—	10	—	52
Fivepence	17	—	—	—	2	—	19
Sixpence	97	4	—	1	1	—	103
Sevenpence	3	1	—	—	—	—	4
Eightpence	3	—	—	—	—	—	3
Ninepence	1	—	—	—	1	—	2
One shilling	18	1	—	—	—	—	19
,, and sixpence	2	—	—	—	—	—	2
Two shillings	5	—	—	—	—	—	5
Gratis	—	7	—	1	3	1	12

"Of the remaining newspapers, many are published at an annual rate of subscription, varying from one shilling to six pounds; some are issued at two separate prices, usually in consideration of the addition of supplementary pages; others are published upon different days at distinct prices, and in several cases the price varies according to circumstances peculiar to the journals themselves. The marked predominance of the penny journals, the popularity of the prices twopence, threepence, and sixpence, and the excess of high-priced newspapers in Ireland compared with Scotland and Wales, are worthy of remark.

"The accompanying statement represents the number of provincial towns in which one or more newspapers are published:—

Number of Newspapers Published.	Number of Towns in					Total.
	England.	Wales.	Scotland.	Ireland.	British Isles	
One	215	12	42	24	—	293
Two	128	10	21	21	—	180
Three	60	2	9	6	—	77
Four	24	2	5	3	1	35
Five	16	—	1	2	—	19
Six	12	2	1	—	1	16
Seven	8	1	1	—	—	10
Eight	3	—	—	1	1	5
Nine	3	—	—	1	—	4
Ten	1	—	—	—	—	1
Fifteen	1	—	—	—	—	1
Twenty-one	—	—	1	—	—	1
Twenty-five	1	—	—	—	—	1
Thirty-two	—	—	—	1	—	1

"Since the last edition the following have been included in the list of towns in which newspapers are now published:—

"*England.*—Ambleside, Bexley Heath, Bromyard, Chertsey, Coalville, Earlestown, Fenny Stratford, Grange-over-Sands, Grasmere, Leominster, Stoke-upon-Trent, Uppingham, Windermere, Wokingham, Wotton-under-Edge.

"*Wales.*—Welshpool.

"*Scotland.*—Dunse, Forfar, Tillycoultry.

"The following towns have ceased to appear in the list:—

"*England.*—Barton-on-Humber, Calne, Fairford, Newcastle-under-Lyme, Prescot, Stretford, Winsford.

"*Wales.*—Bala, Neath.

"*Scotland.*—Grangemouth.

"The following table compares, as far as could be ascertained, the length of time during which existing newspapers have been uninterruptedly issued:—

When Established.	Number of Newspapers in						Total.
	Metropolis.	England.	Wales.	Scotland.	Ireland.	British Isles.	
Before the year 1700	(*a*) 2	(*b*) 2	—	(*c*) 1	—	—	5
1700 to 1799 inclusive	(*d*) 12	(*e*) 49	—	(*f*) 5	(*g*) 8	(*h*) 1	75
1800 „ 1810 „	2	17	3	6	4	—	32
'11 „ '20 „	2	12	—	5	2	3	24
'21 „ '30 „	9	18	1	4	11	2	45
'31 „ '40 „	23	47	2	9	17	1	99
'41 „ '50 „	41	32	2	23	19	2	119
'51 „ '60 „	70	272	18	39	31	3	433
'61 „ '70 „	110	241	16	33	24	4	428
'71 „ '79 „	195	309	20	43	37	2	606
'80	57	74	3	12	10	—	156

(*a*) *London Gazette*, 1665; *Course of the Exchange*, 1697.

(*b*) *Berrow's Worcester Journal*, 1690; *Stamford Mercury*, 1695.

(*c*) *Edinburgh Gazette*, 1690.

(*d*) *Lloyd's List*, 1726; *Public Ledger*, 1759; *Press and St. James's Chronicle*, 1763; *Morning Post*, 1772; *Racing Calendar*, 1772; *Perry's Bankrupt Weekly Gazette*, 1776; *Prince's Price Current*, 1782; *County Chronicle*, 1787; *Times*, 1788; *Observer*, 1791; *Morning Advertiser*, 1794; and *Bell's Weekly Messenger*, 1796.

(*e*) *Nottingham Journal*, 1710; *Newcastle Courant*, 1711; *Hereford Journal*, 1713; *Kentish Gazette*, 1717; *Leeds Mercury*, 1718; *Northampton Mercury*, 1720; *Norwich Mercury*, 1720; *Gloucester Journal*, 1722; *Reading Mercury*, 1723; *Ipswich Journal*, 1725; *Salisbury and Winchester Journal*, 1729; *Chester Courant*, 1730; *Derby Mercury*, 1732; *Bristol Times*, 1735; *Western Gazette*, 1736; *Aris's Birmingham Gazette*, 1741; *Coventry Standard*, 1741; *Keene's Bath Journal*, 1742; *Cambridge Chronicle*, 1744; *Sussex Advertiser*, 1745; *Leicester Journal*, 1753; *Jackson's Oxford Journal*, 1753; *Yorkshire Post*, 1754; *Bath Chronicle*, 1757; *Norfolk Chronicle*, 1761; *Trewman's Exeter Flying Post*, 1763; *Chelmsford Chronicle*, 1764; *Newcastle Weekly Chronicle*, 1764; *Sherborne Journal*, 1764; *Kentish Chronicle*, 1768; *Exeter and Plymouth Gazette*, 1772; *Hampshire Chronicle*, 1772; *Shrewsbury Chronicle*, 1772; *Chester Chronicle*, 1773; *Cumberland Pacquet*, 1774; *Bury and Norwich Post*, 1782; *Doncaster Gazette*, 1786; *Maidstone and Kentish Journal*, 1786; *Hull Packet*, 1787; *Wolverhampton Chronicle*, 1789; *Bristol Mercury*, 1790; *York Herald*, 1790; *Bath Herald*, 1792; *Kent Herald*, 1792; *Eddowes's Shrewsbury Journal*, 1794; *Worcester Herald*, 1794; *Staffordshire Advertiser*, 1795; *Carlisle Journal*, 1798; *Hampshire Telegraph*, 1799.

(*f*) *Edinburgh Courant*, 1705; *Aberdeen Journal*, 1748; *Glasgow Herald*, 1782; *Kelso Mail*, 1797; *Leith Commercial List*, 1798.

(*g*) *Dublin Gazette*, 1711; *Freeman's Journal*, 1763; *Limerick Chronicle*, 1766; *Kilkenny Journal*, 1767; *Derry Journal*, 1772; *Kerry Evening Post*, 1774; *Clare Journal*, 1776; and *Belfast News Letter*, 1737.

(*h*) *Gazette de Guernsey*, 1791.

"*Periodical Publications.*

"The periodical publications (including magazines, reviews, &c.) issued in the United Kingdom number 921 examples, localised in the following manner:—

Metropolis	696	921
England	132	
Wales	24	
Scotland	44	
Ireland	24	
British Isles	1	

"They are issued at varying intervals, as exemplified by the annexed table, in which the monthly form of publication will be seen to predominate very considerably:—

When Published.	Number of Periodicals Published in						Total.
	Metropolis.	England.	Wales.	Scotland.	Ireland.	British Isles.	
Daily	3	1	—	—	2	—	6
Three times a-week	—	—	—	1	—	—	1
Weekly	61	14	1	6	4	—	86
Fortnightly	8	2	—	—	—	—	10
Monthly	464	92	22	33	15	1	627
Bi-monthly	7	—	—	1	—	—	8
Quarterly	108	13	1	2	3	—	127
Half-yearly	9	—	—	—	—	—	9
Irregular and various	36	10	—	1	—	—	47
Total	696	132	24	44	24	1	921

"Some of the prevailing prices are classified hereunder:—

Publishing Price.	Number of Periodicals Published in						Total.
	Metropolis.	England.	Wales.	Scotland.	Ireland.	British Isles.	
Halfpenny	42	9	1	8	—	—	60
One penny	214	53	8	20	10	—	305
Three-halfpence	8	3	—	—	—	—	11
Twopence	64	18	8	—	5	—	95
Threepence	37	5	1	1	2	1	47
Fourpence	21	6	4	1	—	—	32
Sixpence	89	9	2	5	2	—	107
One shilling	63	4	—	1	—	—	68
,, and sixpence	21	—	1	1	—	—	23
Two shillings	14	1	—	2	—	—	17
,, and sixpence	25	3	—	—	—	—	28
Three shillings ,,	9	—	—	—	—	—	9
Four ,,	2	—	—	—	—	—	2
Five ,,	8	—	—	—	—	—	8
Six ,,	10	—	—	—	—	—	10
Gratis	8	12	—	—	—	—	20

"There are also periodicals issued at twopence-halfpenny, fivepence, sevenpence, eightpence, eightpence-halfpenny, ninepence, tenpence, one shilling and a penny, one shilling and twopence, one shilling and threepence, three shillings, four shillings and sixpence, five shillings and sixpence, seven shillings and sixpence, ten shillings and sixpence, and fifteen shillings, and at subscription rates varying from one shilling to five guineas per annum.

"The undermentioned periodicals, first established in the previous century, are still published:—

"*Gentleman's Magazine*, 1731; *Gospel Magazine*, 1766; *Wesleyan Methodist Magazine*, 1778; *Curtis's Botanical Magazine*, 1786; *Evan-*

gelical Magazine, 1793; *Methodist New Connexion Magazine*, 1797; *Philosophical Magazine*, 1798.

"Of the 921 periodicals above mentioned, as many as 400 have a religious tendency. They represent every shade of opinion, and are thus distributed:—

Metropolis	315	400
England	31	
Wales	19	
Scotland	26	
Ireland	9	

"Under the heading *Religious*, in the *Dictionary of Representative Organs*, these publications are classified according to their respective denominations or special objects.

"There are issued several periodicals in the Welsh and French languages, and others are partly printed in Gaelic and the Lancashire dialect.

"The number of illustrated publications, both newspapers and periodicals, increases in a marked degree each year, and the extending introduction of illustrations produced by photographic, chromolithographic, and other modern processes affords gratifying evidence alike of improving taste and corresponding progress in the methods of production.

"Out of 353 illustrated periodicals, twenty-six contain coloured plates, and seven are illustrated by photography—twenty-five are only occasionally illustrated.

"No less than ninety-one periodicals are devoted to the juvenile portion of the community, nearly every one containing illustrations.

"The number of trade organs is continually increasing, there being now 126 publications issued in connection with specific trades. Among the newly issued examples may be mentioned the *Anglo-American Grocer*, *Cabinet Maker*, *Chemists' Journal*, *House Decorator*, *Oil and Colourman's Journal*, and the *Stationery Trades Journal*.

"Thirteen representative journals are identified with the 'Labour Question,' and appeal solely to the industrial classes for support.

"The advancement and employment of women is advocated by seven special publications, while fashions for ladies and children form the principal contents of thirty-five others.

"The establishment in provincial towns during the last few years of periodicals devoted to the humorous criticism of local topics and personages is a noticeable fact. Among the more recently published are the *Gridiron*, Birmingham; *Lancashire Figaro*, Manchester; *Wasp*, Liverpool; and *Zig-Zag*, Bristol.

"The spread of temperance principles is significantly exhibited in the high return of journals—sixty-two—issued by the Good Templars and other abstaining bodies.

"As curiosities of periodical literature may be mentioned two magazines containing literary compositions by inmates of asylums for the insane.

"Reference to the *Dictionary of Representative Organs* will furnish much interesting and curious information relative to the newspaper and periodical press, and the many interests of more or less importance it represents.

"*Annual Guides, Directories, &c.*

"In the *Guide* also will be found a list of annuals, directories, guides, almanacs, year books, and other works of reference, numbering 357 examples; as well as particulars of twenty-nine Diocesan Church calendars."

VIII.—*Statistics of Foreign Libraries.*

The following is taken from the *Publishers' Circular* of 15th November, 1880:—

"From recent statistics it appears that the following are the number of libraries and volumes at present existing in the various Continental countries:—

	Libraries.	Volumes.	Per 100 Inhabitants.
Austria	577	5,475,798	26·8
France	500	4,598,000	12·5
Italy	493	4,349,281	16·2
Prussia	398	2,640,450	11·0
Bavaria	169	1,368,500	26·4
Russia	145	952,090	1·3
Belgium	105	609,110	10·4

"Among the more prominent of the various libraries are the Bibliothèque Nationale of Paris, with 2.078,000 vols., and 86,000 MSS.; the Royal Library at Munich, with 800,000 vols., and 24.000 MSS.; of Berlin, with 700.000 vols., and 15,000 MSS.; of Dresden, with 500,000 vols.; of Vienna, with 420,000; of Copenhagen, 410,000. Paris itself possesses some very large libraries apart from the Nationale, viz., that of the Arsenal, 180,000; Mazarine Library, 150,000; the Institute, 80,000; the City of Paris Library, 52.000; while in the provinces are the libraries of Amiens, 42,000; Versailles, 41,000; Mans, 41,000; Montpelier, 40,500; Cambrai, 30,000; Toulouse, 30,000.

IX.—*Summary of the Census of all India*, 1881.

The following memorandum and two statements have been submitted to the Viceroy of India, showing the rough figures obtained at the recent census of all India.

"*Memorandum.*

"The tables appended to this memorandum deal with the population as recently ascertained at the enumeration effected in the various British provinces, and in the independent and feudatory States of India on the 17th February, 1881.

"2. This census may fairly claim to be the largest work of the kind, of which the record is available, undertaken in any country.

"3. Practically speaking, a population numbering 252 millions was enumerated on one and the same day.

"4. With the exception of the native States of Rajputana, for which as yet only the number of the people without distinction of sex has been given, the statements now printed show the number of males and females making up this large population.

"5. In the numerous cases where a previous census of any province or State has been made, the figures of the former enumeration are recorded side by side with the figures ascertained at the enumeration of 1881. Columns have been added giving in each instance the date of the census immediately preceding that of 1881, and the percentage of increase or decrease of the population observable on a comparison of the figures of the two enumerations.

"6. Taking the statistics for those provinces and States where the present census is not the first, it will be observed that, in a population of 218 millions, there has been an apparent increase of 12¾ millions or 6·2 per cent. on the population as enumerated in previous years.

"7. The present is not the time for attempting to draw any conclusions as to the growth of the population evinced by these figures. That can be more appropriately discussed when the provincial reports are submitted. In some cases, however, the increase is believed to be more apparent than real, and as an example of this I may note the central provinces, where a figure addition to the population, in a term of nine years, of one quarter is mainly accounted for by the inaccuracy in the figures of the preceding census.

"8. It is satisfactory to note that where the recorded increase in the number of the people has been most conspicuous, as in British Burma, Assam, Berar, and Sindh, there was ample room for the population to expand.

"9. The only provinces or States which show a very perceptible decrease are Mysore (17 per cent. decrease) and Madras (2·4 per cent. decrease). These figures, I fear, give mournful evidence of the check to growth in numbers which famine and consequent disease have imposed on the population of these two countries.

"W. C. Plowden,
"*Census Commissioner for India.*

"Simla, 27th August, 1881.

Statement showing the Population by Sex of the several Provinces in India according to Census of 1881 *and previous Census.*

1	2	3	4	5	6	7
Provinces.	Population according to Census of 1881.			Population according to previous Census.		
	Both Sexes.	Males.	Females.	Both Sexes.	Males.	Females.
Bengal	68,829,920	34,220,905*	34,601,015*	62,709.405	31,343,746	31,365,659
Assam	4,815,157	2,465,453	2,349,704	4,056,054	2,037,694	1,908,360
Madras	30,839,181	15,242,122	15,597,059	31,597,872	15,874,235	15,723,637
Bombay	13,978,488	7,164,824	6,813,664	14,038,359	7,266,180	6,772,179
,, Native States	6,941,631	3,575,471	3,366,160	6,786,855	3,542,950	3,243,905
Sindh	2,404,934	1,311,006	1,093,928	2,192.415	1,216,208	976,207
North-west provinces	32,699,436	17,041,020	15,658,416	30,769,056	16,406,833	14,362,223
Rampore	545,152	284,593	260,559	—	—	—
Native Garhwal	200,523	102,044	98,479	—	—	—
Total	33,445,111	17,427,657	16,017,454	—	—	—
Oudh	11,407,625	5,860,960	5,546,665	11,219,675	5,822,218	5,397,457
Punjab—						
British territory	18,786,107†	10,189,727	8,596,380	17,611,498	9,595,434	8,016,064
Native States	3,853,282	2,106,359	1,746,923	—	—	—
Khyber troops	8,153	7,970	183	—	—	—
Total	22,647,542	12,304,056	10,343,486	—	—	—
Central Provinces	11,505,149	5,801,794	5,703,355	9,251,229	4,708,500	4,542,729
Berar	2,670,982	1,378,997	1,291,985	2,231,565	—	—
British Burma	3,707,646	1,987,426	1,720,220	2,747,148	1,435,518	1,311,630
Mysore	4,186,399	2,086.292	2,100,107	5,055,412	2,535,924	2,519.488
Coorg	178,283	100,854	77,429	168,312	94,454	73,858
Rajputana	11,005,512‡	No sex	details.	—	—	—
Ajmere	453,075	243,904	209,171	426,268	233,368	192,900
Central India	9,200,881	4,848,753	4,352,128	—	—	—
Baroda	2,154.469	1,123,311	1,031,158	2,000,225	1,057,640	942,585
Hyderabad	9,167,789	4,568,993§	4,448,796§	—	—	—
Travancore	2,401,158	1,197,134	1,204.024	2,308,891	1,148,689	1,160.202
Cochin	600,278	301,415	298,863	601,114	302,373	298,741
Grand Total	252,541,210	123,211,327	118,166,371	—	—	—

* Population details for Sikkim wanting. Excluding Naga Hills not censused.

† Excluding population of the Lahoul, Spiti, and Hazara districts not censused.

‡ Approximate.

§ Population details for Paegah districts wanting.

Note.—The difference of 11,163,512 between the grand total of Cols. 3 and 4 and that of Col. 2 is accounted for by the absence of sex details for the whole of Rajputana, for the Paegah districts of Hyderabad, and for independent Sikkim.

Comparative Statement of Populations according to Census of 1881 *and previous Census.*

Province.	Population according to Census of 1881.	Population according to previous Census.		
	Both Sexes.	Both Sexes.	Year of Census.	Difference per Cent.
Bengal	68,829,920	62,709,405	1871	+ 10
Assam	4,815,157	4,056,054	'71	+ 19
Madras	30,839,181	31,597,872	'71	− 2·4
Bombay	13,978,488	14,038,359	1872	− 0·3
,, native States	6,941,631	6,786,855	'72	+ 2·3
,, Total	20,920,119	20,825,214	—	+ 0·4
Sindh	2,404,934	2,192,415	1872	+ 10
North-western provinces (excluding Rampore and Native Garhwal)	32,699,436	30,769,056	1872	+ 6
Oudh	11,407,625	11,219,675	'68	+ 1·6
Punjab (British territory only)	18,786,107	17,611,498	'68	+ 7
Central provinces	11,505,149	9,251,229	'72	+ 25
Berar	2,670,982	2,231,565	'67	+ 20
British Burma	3,707,646	2,747,148	'72	+ 35
Mysore	4,186,399	5,055,412	'71	− 17
Coorg	178,283	168,312	'71	+ 6
Ajmere	453,075	426,268	'66	+ 6
Baroda	2,154,469	2,000,225	'72	+ 8
Travancore	2,401,158	2,308,891	'75	+ 4
Cochin	600,278	601,114	'75	− 0·14
Grand total of 17 provinces	218,559,918	205,771,353	—	—

Note.—Increase over last census = 12,788,565, or about 6 per cent.

X.—*Notes on Economical and Statistical Works.*

The Imperial Gazetteer of India. W. W. Hunter, C.S.I., LL.D., Director-General of Statistics to the Government of India. (Trübner and Co.)

Two years ago we had occasion to notice* Dr. Hunter's *Report on the Statistical Survey and Imperial Gazetteer of India*, describing the progress of the great work which has now at length been published. In the course of that report the author stated that there was then no difficulty in the way of the appearance of the *Gazetteer* in 1881, the year fixed on by the Indian Government as the latest it could permit. An extension of the period devoted to its preparation would have been in some respects an advantage, in Dr. Hunter's opinion, but there were also good reasons for the decision of the authorities. It seems at first sight unfortunate that the *Gazetteer* should have been published in the very year when a new census of India was taken, and that the population statistics included should consequently be ten years old, and liable to be superseded by the results of the later enumeration. But any further delay would have still further increased the cost of a work on which a good deal has already been spent, and would not have increased its value as a book of reference for topographical inquiry. The statistical information it contains is still very valuable, and even if the latest population figures could have been included in it, the statistics regarding trade and other matters would still have been inevitably behindhand for many districts. In our notice of the report, above mentioned, we described at some length the plan in accordance with which the work was done, and it is therefore unnecessary to say anything further regarding it. Neither is it possible to attempt any criticism of the matter contained in the work, except by observing that the principles laid down by Dr. Hunter, and his method of arrangement, have been strictly adhered to throughout. The *Gazetteer* is a model of excellence in these respects, and cannot fail to be of the highest service to all engaged in Indian administration, or who are in need of information on any point connected with our great dependency. As already observed, the population figures are those of the census of 1872. The other statistics are in all cases the latest that could be obtained, and the great mass of those relating to trade refer to years between 1875 and 1879. In some cases they are carried down to 1880. Probably the article to which every reader of the *Gazetteer* will at once turn will be that on "India," giving unquestionably the best general account of the country that has ever been published. We may assume that the greater part of it was prepared under the immediate personal supervision of Dr. Hunter, if, as is more probable, it was not actually written by him. It is a masterly production, even from a literary point of view, and as a summary of the history, the political and social systems, and the economic characteristics of India, it is very unlikely to be surpassed for many years to come. We extract from this article and the statistical appendices to it the following table illustrative of a point of interest:—

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* *Journal of the Statistical Society*, June, 1879.

Statement of the Area under the Three Principal Classes of Indian Food-Grains in the undermentioned Provinces of India.

Province.	Percentage of Food-Grain Area under			Total Population.	Population Eating Rice.
	Wheat or Barley.	Millet.	Rice.		
				Mlns.	Mlns.
Punjab	54	41	5	20	1
North-Western Provinces	57	34	9	42	4
Bengal and Assam	Not	known	—	66	46
Central Provinces	27	39	34	8	3
Berar	17	82	1	2	—
Bombay	7	83	10	17	2
Madras	—	67	33	31	10
Mysore	—	84	16	5	1
	—	—	—	191	67

The absence of information regarding Bengal is unfortunate, as the magnitude of the province makes the question of the agricultural distribution of its area one of great interest. The extension of the area under wheat is a fact of the highest importance. "It has been estimated," says Dr. Hunter, "that the total area under wheat in India is equal to the area under the same crop in the United States." Those who are acquainted with Dr. Forbes Watson's "Report on Indian Wheat,"* will not be at all surprised at this, but it will, we imagine, be news to many people.

The Purchase of Gas and Water Works, with the Latest Statistics of Municipal Gas and Water Supply. By Arthur Silverthorne, Consulting Engineer. (Crosby, Lockwood, and Co.)

Mr. Silverthorne's book is valuable, not only for the interesting and well considered observations as to the proper principles to be adhered to in arranging a scheme for the purchase of gas and water works, but for containing abstracts of the statistics relating to works under the management of local authorities in London and the country. It also shows, with regard to gas works, the effect of the Municipal Borough Funds Act, 1872, which provided that borough funds may only be applied to the promotion of Bills "so long as they are not promoted for the establishment of any gas or water works to compete with any existing gas or water company." Previous to the passing of the Act many municipalities had acquired possession of gas and water works on terms which were, on the whole, reasonable, by means of the threat of constructing works of their own if the companies demanded too much. There was not much fear that the companies would be unfairly treated, as the cost of bringing in a Bill, and much more of actually starting competing works, would render the acceptance of any proposal not involving an outrageous price of transfer pretty certain. Subsequently to the passing of the Act, municipalities wishing to purchase works have been entirely at the mercy of the companies, except in certain cases provided for by the Public Health Act, 1875, whereby municipalities obtained a prior right to supply gas in any district within their jurisdiction which was not yet supplied with it. Mr. Silverthorne is of opinion that the terms exacted by the companies have in several cases been very onerous. His mode of estimating the cheapness or dearness of a purchase is thus described. It usually happens "that the cost of coal and manufacture and distribution of gas, exclusive of capital charges, amount to 1*s.* 11*d.* per 1,000 feet sold, so that, if the capital charges do not exceed 10*d.* or 13*d.*, this will enable the gas to be supplied to the consumer from 2*s.* 9*d.* to 3*s.* per 1,000 feet. Therefore, taking this as a typical case of what is scarcely cheap gas, it is perfectly correct to reckon any transfer of *efficient* works a high-priced purchase, in which the purchase money and interest on loan capital works out higher than *thirteen pence per* 1,000 *feet of gas sold.*" This he illustrates by a table showing the terms of the purchases effected from 1868 to 1880. The high prices obtained both for gas and water works are usually justified by claims being put in for prospective value, back dividends, and unissued capital, which in many cases are very unreasonable.

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* *Journal of the Statistical Society,* September, 1879.

Aid Book to Engineering Enterprise Abroad. By Ewing Matheson, M.Inst. C.E. Part II. (E. and F. N. Spon.)

The second part of Mr. Matheson's *Aid Book* contains much fuller information on a number of important points connected with engineering enterprise abroad than was given in the earlier portion published three years ago. The two volumes together form a work which will be useful not only to those for whom it is especially intended, but for all who are in any way interested in attaining knowledge regarding the nature and conditions of industrial operations. The main object of the book is to not so much to explain as to formularise the grounds on which a sound judgment can be formed as to how engineering works of all kinds may best be carried on abroad, and to point out the peculiarities of each kind of work in so far as they have a bearing on the subject. Mr. Matheson, however, found it impossible to stop at generalities, in treating of a question in which the proper adjustment of details is almost everything. It is well understood by all who have something more than a superficial knowledge of such matters, that the difference between success and failure in an enterprise, may depend on some apparently trifling point, such as the adoption of a special kind of material for a building, *e.g.*, the choice of iron instead of wood, or *vice versâ*, or the planning of a machine in such a way as to take account of the difficulty in having repairs executed in countries at a distance from that in which the machine was made. The author has accordingly entered at some length into descriptions of the actual materials used in the construction of engineering works. He explains, for instance, the characteristics of the different qualities of pig iron, and the various forms into which that article is worked for the ordinary purposes of the mechanical engineer. He also makes a number of most useful observations on the numerous classes of machinery and apparatus, especially the plant required for the construction and working of railways, and the purchase of steam engines. There are also interesting chapters on the transmission of power, and on contract and purchase in the engineering trades. As a literary production the volume is excellent, the style being clear, and to a large extent free from technicalities. These latter can always be avoided by the exercise of a little patience by an author, and in a work not intended for specialists, should be used as little as possible. Mr. Matheson has also taken great pains to make his book available for reference, by copious marginal headings and a full index.

XI.—*Notes on some Additions to the Library.*

Théorie Mathématique du Bimétallisme. Par Léon Walras, Professeur d'Économie Politique à l'Académie de Lausanne. Extraits du *Journal des Économistes*, de Décembre, 1876, et Mai, 1881. (Paris: Guillaumin et Cie., 1881.)

M. Léon Walras's pamphlet, consisting of two articles on Bimetallism, which have appeared in the *Journal des Économistes*, is very interesting, both as a specimen of the application of mathematical reasoning to economic questions, and on account of its bearing on the practical question raised by M. Cernuschi and his adherents. The main points of the argument of M. Walras are contained in the earlier of the two papers. In this he shows that M. Cernuschi is mistaken in his assertion that the value of the two precious metals as merchandise is regulated *directly* by their value as money. "Undoubtedly" he says, "the relation of $15\frac{1}{2}$ if imposed on the coined metal by the legislation, imposes itself on the metal considered as merchandise by the mechanism of free competition, but not at once, nor permanently." He then goes on to point out that if the relation of silver to gold in the open market is greater that $15\frac{1}{2}$ to 1, this relation will tend to be reduced by the process of demonetising gold as long as there is any gold to demonetise, but that when once all the gold has been demonetised the market relation of silver to gold will be permanently *higher* than $15\frac{1}{2}$ to 1. In the converse case, of course, the process will be reversed, silver being demonetised, and the relation of silver to gold finally steadying itself at some rate *less* than $15\frac{1}{2}$ to 1. M. Walras has not thought it necessary to add that in the former case there will be a tendency to coin silver, and in the latter to coin gold, these two movements being implied in those he mentions. We need hardly remind our readers that these were the phenomena actually observed in France ever since silver began to fall relatively to gold, until the Latin Union suspended the coinage of the white metal. The gold coins disappeared from the circulation, and heavy silver *écus* took their place, to the great disgust of business men. In the second article M. Walras replies to the attack made by M. Cernuschi on his former one, by demonstrating mathematically the correctness of the views therein enunciated. He sums the matter up thus. "It is necessary that the economists should cease giving as their sole reply to M. Cernuschi, that 'it is as difficult for the State to maintain a fixed relation between the value of gold and the value of silver, as between the value of wheat and the value of rye.' It is very easy for the State to maintain a fixed relation between the value of gold coin and the value of silver coin, and this relation when once established tends indirectly to establish itself between gold merchandise and silver merchandise. But M. Cernuschi also must give up contesting that coined metal may change its value in changing its form; and maintaining that 'there is a constant identity between the value of metal in ingots, the value of metal in coin, and the value of metal in jewellery.' This identity of value of metal as merchandise and metal as coin, so far from being constant, is only maintained by the coining on the demonetisation of metal, and ceases when there is no more metal to demonetise." We have never seen the theoretic case against bimetallism better stated. As for the practical side of the question, M. Walras expressly abstains from offering an opinion.

Théorie Mathematique du Prix des Terres et de leur rachat par *l'État.* Par Leon Walras. (*Bulletin de la Société Vaudoise des Sciences Naturelles.*)

Another remarkable work by M. Walras has also been added to the library. This is his valuable essay on the mathematical theory of the price of land, and of the purchase of land by the State. His proposal is based on the steady increase of the rental of every civilised and progressive country. He shows that this increment would, year by year, suffice to pay the interest on the money raised to purchase the land, and after a certain time to commence the extinction of the loan itself. He gives credit to James Mill for having seen the advantages of some scheme of the kind, which would enable almost every form of capital to be freed from taxation. But his treatment of the subject is chiefly based on the investigations of Hermann Heinrich Gossen, of whose work on economics we gave a brief notice two years ago.* Like all Gossen's investigations, this one is dependent on assumptions that are in a considerable degree erroneous. The mathematical expressions employed by M. Walras are easy to follow, though somewhat complicated. The whole scheme might, in M. Walras's opinion, be carried out without inflicting any injustice on the present owners of land, who have paid a price for it which includes a consideration for the prospective value. He would rely for the success of the operation on the maintenance of a wise system of administration. We need hardly say that this involves the attribution to the State of a degree of capacity which few English or French economists would grant. At all events the doctrine most usually professed is that the State can never perform the functions of a man of business well. The speculations of M. Walras are, nevertheless, of the highest interest, especially as everything points to the approach of a period when the land question will become the foremost subject of discussion, and when wild doctrines regarding property in land are likely to be put forward by rash and ignorant politicians.

La Science Economique. P. Yves Guyot. (Paris: C. Reinwald.)

This volume forms one of the *Bibliothèque des Science Contemporaines*, of which M. Reinwald is the editor. It is a very interesting one for two reasons, first, because it represents the French school of economists, whose influence has for some years been growing in England; and secondly, because it contains much excellent criticism of the work done by earlier writers. We may mention a third point in connection with the book, and that is its objective character, namely, that copious use is made of the statistical diagrams in illustrating the principles treated of. The employment of the statistical method in works explaining the theory of economic science, has not been usual in this country, and even in France it has been far from frequent. There can be no doubt, however, that this is the only mode of exposition that can be regarded as satisfactory. Care ought of course to be taken to avoid contentious matter. M. Guyot has not always observed this condition, and exception has been taken to one of his leading theories, by M. Paul Leroy-Beaulieu. His book is not, in short, quite what it professes to be, a popular manual of economic science. It is too difficult for a beginner. M. Guyot commences by dealing with the method of economic science. He attacks alike the historical and the mathematical deductive schools, but especially the former. The historical school, has fortunately, and in spite of the support given to it by one or two distinguished men, not gained much footing in this country. It has, however, done the work for which it was needed in modifying the extravagance to which the deductive school seemed inclined to carry their principle. M. Guyot is not quite just to those who attempted to apply mathematics to economical investigations. The attainment of clear conceptions is much facilitated by the use of mathematical language, as M. Guyot himself is obliged to admit, and no one has proposed to attempt to construct an economic science without the aid of observation. The pretensions of the historical school are more dangerous on the continent than here, and their errors are apt to take the form of Socialism, especially in Germany, where the superficially brilliant school, of whom the late Professor Held was a leader, has secured a dominant position. M. Guyot naturally does not devote much time to criticising views so little connected with the actual facts of existence as those of the *Katheder-Socialisten.* His observations on statistics and on their use are valuable as far as they go, but do not by any means exhaust the subject, as the author is well aware. He enters a protest against the practice of calling the use of diagrams the "graphic method." It is certainly a misleading expression, but is convenient in some cases. In spite, however, of the correctness of his assertions as to the caution with which statistical tables must be used, we doubt if he has fully realised the meaning of his own precepts, or he would not have accepted without criticism a table of wages given on p. 231. It shows the mean daily wages of nine classes of female workers, and then gives the mean of the whole by adding the separate figures up and dividing them by nine. This operation takes no account of the difference in the numbers of the different classes of workpeople, and the results are therefore quite fallacious. It is rather surprising to find M. Guyot controverting Malthus, by showing that the rates of increase of population and means of subsistence are not in geometrical and arithmetical progression respectively. The few who have read Malthus, are aware that he only made use of an analogy, and did not mean to assert a rigid scientific law.

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* *Journal*, September, 1879, p. 727.

One of M. Guyot's principal doctrines is that depression of trade is produced not by over-production, but by over-consumption, and he argues very ably for the truth of his thesis. The matter is too large for discussion here, but we may observe that the difficulty of procuring anything like agreement among economists as to the proper designation of the phenomena which precede a period of low prices and dull trade, is a striking example of the need for more careful observations than those yet made. Another theory which he holds is that the value of gold does not increase or diminish in proportion to its quantity. He tries to show that it has risen recently as compared with circulating capital, and fallen in relation to fixed capital. Accordingly he attacks the method adopted by

M. Levasseur, Mr. W. S. Jevons, and others for determining the change in the purchasing power of gold, by observing the prices of a large number of commodities at two points of time, as defective. He says that in order that this theory should be correct, all capital, both fiscal and circulating, ought to have moved uniformly, and he shows that this is not so. The questions thus raised are of the highest interest, and it is very desirable that their investigation should be as complete as possible.

Third Annual Report of the Central Sanitary Bureau of the Home Department of the Imperial Japanese Government for the period from 1st July, 1877, to 30th June, 1878. (Tokio.)

The publication of such a volume as this is a very remarkable phenomenon even in such an extraordinary country as Japan, where the progress of centuries has been, to all appearance, secured in many particulars in the course of a few years. We shall not attempt to go into the contents of the report which is, of course very technical in character, but only desire to call attention to it as a statistico-medical work of great merit so far as clearness and precision of language and propriety of arrangement go. Mr. Nagayo Sensai, the director of the Central Sanitary Bureau of Japan, deserves great credit for producing so excellent a volume.

XII.—*Additions to the Library.*

Additions to the Library during the Quarter ended 30*th September*, 1881.

Donations.	By whom Presented.
Argentine Confederation.	
Buenos Aires. Boletin Mensual de Estadística Demográfica y Médica de, Año I, Nos. 5, 6, 7, y 8, 1881. Imp. 8vo.	Statistical Bureau
Boletin de la Oficina de la Provincia. Movimiento de la Poblacion, &c. Año I, Núm. 1 y 2. 4to. 1881	
Austria and Hungary—	
Statistisches Jahrbuch für 1878. III und IV Heft. Gewerbliche Industrie, Handel, Eisenbahnen, Strassen, Fluss- und See-Schifffahrt, Post und Telegraphen. Wien, 1881	The Imperial Central Statistical Commission
Statistica dei Viaggi fatti dai Bastimenti Ungarici a Lungo Corso in 1880. 41 pp., imp. 8vo. Fiume, 1881	The Imperial and Royal Austro-Hungarian Embassy
PRAGUE. Král. hlavní město Praha. (Current numbers.)	The Statistical Bureau
Oesterreichisch-Ungarische, Sparkassen-Zeitung. (Current numbers.) Folio. Wien	The Editor
Belgium. Ville de Bruxelles. Bulletin Hebdomadaire de Statistique Démographique et Médicale. (Current numbers)	Dr. E. Janssens

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No. 3. Silk Culture in China. 163 pp., plates, 4to. Shanghai, 1881	
Denmark. Nationalökonomisk Tidsskrift. 7^{de}—10^{de} Hefte, 1881. Kjöbenhavn	The Danish Political Economy Society
Egypt—	
Canal de Suez, 1880, Statistique de la Navigation par le. Avec une résumé du Transit depuis l'ouverture jusqu'au 31 Décembre, 1879. 74 pp., imp. 8vo. Le Caire, 1881	The Director-General of Statistics, Cairo
Bulletin Trimestriel de la Navigation par le Canal de Suez. 2^{ieme} année, No. 2, 1881. 34 pp., 4to.	
Commerce Extérieur. 2^e année, 1^{er} Trimestre, 1881	
France—	
Ministère des Finances. Bulletin de Statistique et de Législation comparée. Juin—Septembre, 1881	M. A. De Foville
Ministère des Travaux Publics, Bulletin du. Juillet et Août, 1881	The Ministry of Public Works
Compte Général de l'Administration de la Justice Civile et Commerciale pendant 1879. xxv et 197 pp. 4to. Paris, 1881	The Ministry of Justice
Compte Général de l'Administration de la Justice Criminelle pendant 1879. xxxvi et 237 pp., 4to. Paris, 1881	
Rèvue Bibliographique Universelle, Paris, 1881—	
Partie Littéraire. Juillet—Septembre	The Editor
Partie Technique. Juin—Août	
L'Economiste Français. (Current numbers.) Paris	
Revue Géographique Internationale. No. 65, 5^{ieme} année. 4to. Paris, 1881	"
Société de Statistique de Paris, Journal de la. Juillet—Septembre, 1881	The Society
Germany—	
Monatshefte zur Statistik des Deutschen Reichs, May—August, 1881	The Imperial Statistical Office, Berlin
Die Bodenkultur des Deutschen Reichs—Atlas der landwirthschaftlichen Bodenbenutzung nebst Darstellung der Forstfläche, nach der Aufnahme im Jahre 1878, mit Tabellen und erläuterndem Text. Folio. Berlin, 1881	
Preussische Statistik—	
Heft lix. Meteorologischen Beobachtungen im Jahre 1880	The Royal Statistical Bureau of Prussia
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Zeitschrift des K. Preussischen Statistischen Bureaus. Hefte I und II. 1881	

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Annali dell' Industria e del Commercio, 1881. Num. 37. Relazione sull' Arte applicata all' Industria nell' Esposizione Nazionale in Torino dell' anno 1880. Num. 38. Mostra Internazionale della Pesca Tenuta a Berlino nel 1880	The Director-General of Statistics
Annali di Statistica. 1881. Serie 2ª, vol. vi. Geografia Nosologica, e vols. xix e xxii	
Atti della Commissione d'Inchiesta sull' Esercizio delle Ferrovie Italiane. Parte 2, vols. i, ii, iii. Riassunto delle Rioposte Scritte ed Orali, e Parte 3, Relazione. 4to., maps, plans, &c. Roma, 1881	
Atti della Giunta per la Inchiesta Agraria e sulle condizioni della Classe Agricola. Vol. i, fasc. iv. Roma, 1881	
Bollettino Settimanale dei Prezzi di alcuni dei principali Prodotti Agrari. (Current numbers.) 1881	
Bollettino Mensile delle Situazioni dei Conti degli Istituti d'Emissione. Anno xii; Nos. 4, 5, 6, 7. 1881	
Bollettino Bimestrale delle Situazioni dei Conti. Anno xii, Nos. 1, 2. 1881	
Bollettino Bimestrale del Risparmio. Anno vi. Nos. 2, 3. 1881	
Bollettino di Notizie Commerciali. Anno iii, Nos. 16—22. 1881	
Bollettino Consolare. Nos. 6—8. 1881	
Classificateur des Bulletins pour le Recensement de la Population. 5 pp., diagrams, &c., imp. 8vo. Rome, 1881	
Importazione e di Esportazione dal 1° Gennaio al 30 Giugno 1881. Statistica del Commercio Speciale. 17 pp., 4to.	
Movimento Commerciale nell'anno 1880. ix and 341 pp., imp. 4to.	
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Società Italiana d'Igiene. Giornale della. Anno iii, Nos. 6, 7, 8. Milano, 1881	The Society
Japan. Third Annual Report of the Central Sanitary Bureau of the Home Department of the Imperial Government, from 1st July, 1877, to 30th June, 1878. 71 pp., 8vo. Tokio, 1881	Nagayo Sensai, Esq., Director of the Central Sanitary Bureau
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Russia—	
Annuaire des Finances Russes. 9e année, 1881. 453 pp., imp. 8vo. St. Petersbourg	A. Vessélovsky, Esq.
Imperial Russian Geographical Society, Journal of the. 1878 to 1881. (In Russian.) 8vo. St. Petersburg	The Society
Spain—	
Aforos Practicados en las Cuencas de los Rios Ebro, Duero, Guadiana, Guadalquivir y Tajo, durante el año 1880. 253 pp., 8vo. Madrid, 1881	The Minister of Public Works, Madrid
Boletin Mensual de Estadística Demográfico-Sanitaria de la Península é Islas adyacentes. Año 3°. Núm. 25, Junio, 1881. 4to. Madrid	Director-General of Beneficence and Health
Revista de Topografía, Agrimensura y Catastro. Año I, Nos. 2, 4, y 6. Imp. 8vo. Madrid, 1881	The Editor
Sociedad Geográfica de Madrid. Boletín de la. Tomo x, Nos. 5 y 6; tomo xi, Nos. 1 y 2. 1881	The Society
Switzerland. Bibliothèque Publique de Genève, 1880. Renseignements généraux. 16 pp., 8vo.	The Library
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Norway—*Officielle Statistik—*	
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U. Kommunernas Fattigvård och Finanser V. Statistiska centralbyråns underdåniga Berättelse för år 1878 (Finances des Communes)	
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Riks-Stat för år 1882. 30 pp., small 4to. (Budget)	
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Sammandrag af Riksbankens, Ställning, Januari—Juni, 1881 (Banque de Suède)	
Sammandragen öfversigt af de enskilda bankinrättningarnes ställning efter 1880 års bokslut, &c.	
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Agriculture, Monthly Reports upon the condition of Crops, June—August, 1881	The Commissioner of Agriculture
Bureau of Statistics—	
No. 3, 1880-81. Quarterly Reports of Imports, Exports, Immigration, and Navigation, to 31st March, 1881	Bureau of Statistics, Department of State, Washington
Monthly Statements of Imports and Exports. Nos. 10 and 12, 1881	
Commercial Relations. Reports of Consuls on Commerce, Manufactures, &c. No. 9. 1881	
RHODE ISLAND. Providence. Reports of Deaths during June and July, 1881	The City Registrar
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Medical Herald, The. Vol. iii. Nos. 27 to 29. 8vo. Louisville, 1881	
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Social Science Association. Free Coinage and a Self-adjusting Ratio. By Thomas Balch. 27 pp., 8vo. Philadelphia, 1877	
Uruguay. Diario Oficial. Año i, Nos. 1—6, 9, 10. Folio. Montevideo. 1881	Director-General of Statistics

India, Colonial, and other Possessions.

Cape of Good Hope. Blue Book for 1880; also Report on above, with Statistical Summary. Folio. Cape Town, 1881	The Colonial Secretary, Cape Town
India—	
Preliminary Statement of the Population of the various Provinces and States in India by the Census of 1881. 3 pp., folio. Simla, 1881	W. C. Plowden, Esq.
Report on Railways in, for 1880-81. [C-2999.] Map, folio. 1881	Juland Danvers, Esq.
India, British—	
Trade and Navigation, Monthly Accounts. Nos. 1 to 4. April—July, 1881. 8vo	The Indian Government
Trade by Land with Foreign Countries. Monthly Accounts. No. 3, April—December, 1880. 8vo.	
The Asiatic Society of Bengal—	
Proceedings. Nos. 5 to 7, May—July, 1881	The Society
Journal. Vol. 50, Parts I and II of No. 2, 1881. Plates, &c.	
General Council on Education in India. First Report, 1881. 15 pp., 8vo. London	James Johnston, Esq., Hon. Sec.
New South Wales—	
Financial Statement of the Treasurer of. 129 pp., folio. Sydney, 1881	The Agent General, New South Wales
Statistical Return of the Australasian Colonies. Sheet. Sydney, 1880	
Pamphlets, &c., giving general information for Emigrants and others	
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New Zealand. Friendly Societies. Fourth Report. Folio. Wellington, 1881	W. R. E. Brown, Esq., Registrar-General
Queensland—	
Government Gazette, Supplement to the, containing Vital Statistics. Vol. xxviii, Nos. 64, 74. Folio. Brisbane, 1881 Vital Statistics, 1880. Twenty-first Annual Report. Folio. 1881	The Registrar-General, Queensland
Tasmania—	
The Mercury of Hobart, with Reports on Vital Statistics. (Current numbers) Report for 1880 of the Officer of Health for New Town, Sandy Bay, and Wellington Hamlets. One sheet, folio	Dr. E. Swarbreck Hall, Hobart
Royal Society of Tasmania. Papers and Proceedings and Report for 1879. 8vo. Hobart	The Society
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Agricultural Statistics of the Colony of, for the year ended 31st March, 1881 Census of 1881. Approximate Returns. 11 pp., folio.	H. H. Hayter, Esq., Government Statist
United Kingdom—	
Army Medical Department, Report for 1879. Vol. xxi. viii and 342 pp., diagrams, &c	The Director-General
Railway Companies, General Report on, for 1880. [C-3077] Accidents on Railways, General Report upon, during 1880. [C-3037] Railway Returns for 1880. xix and 90 pp., folio, [C-2996] Statistical Abstract for the United Kingdom from 1866 to 1880 Statistical Abstract for Colonial and other Possessions from 1865 to 1879 Trade and Navigation. Monthly Returns. June—September, 1881	The Board of Trade
Great Britain. Building Societies, Return of, for 1880. No. 245. 1881	Registrar of Friendly Societies
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Quarterly Returns of Marriages to March, 1881; Births and Deaths to June, 1881. No. 130	The Registrar-General, London

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The Tenth Annual Return of Local Taxation 1879-80. No. 392	F. Purdy, Esq.
Tenth Annual Report of the Local Government Board, 1880-81. [C–2982]	
Metropolitan Police. Number of persons taken into custody by the—and results, in 1880. With comparative statements, 1831-80	The Chief Commissioner
Ireland—	
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Supplement to the Monthly and Quarterly Returns of Births, Deaths, and Marriages in 1880; also the Vaccination Returns relative to Children born in 1879	
Births, Deaths, and Marriages, Twenty-third Detailed Annual Report (Abstracts of, 1877). 1881................	”
Authors, &c.—	
Bell (Hugh). The Earth or Dry Closet System. 14 pp., plates, 8vo. Brisbane, 1881............................	Agent - General of New South Wales
Besso (Marco). La Cassa di Mutuo Soccorso. 7 pp. 8vo. Milano. 1881	The Author
Statistical Atlas. Edited by G. P. Bevan, Esq. Part VII, Agricultural; Part VIII, Military and Naval; Part IX, Legal	Messrs. W. and A. K. Johnston
Fleming (Sandford), C.M.G. The Adoption of a Prime Meridian to be Common to all Nations. The Establishment of Standard Meridians for the Regulation of Time. 15 pp., 8vo. 1881..........................	The Author
Földes (Weisz), (Prof. Dr. Béla). Cautelen bei Anwendung der Statistischen Methode von. 22 pp., imp. 8vo. Wien, 1881	Alfred Hölder, Esq.
Guyot (Yves). Dialogue entre John Bull et George Dandin sur le Traité de Commerce Franco-Anglais. 122 pp., 12mo. Paris, 1881	The Author
Knox (the Hon. John Jay). Dry Bank Statistics. Address of, at the Annual Convention of the American Bankers' Association, August, 1881. 16 pp., 8vo. New York	”
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JOURNAL OF THE STATISTICAL SOCIETY,

DECEMBER 1881.

The Opening Address *of* James Caird, Esq., C.B., F.R.S., President *of the* Statistical Society, *delivered on* Tuesday, 15*th November*, 1881.

On taking the chair last year as your President, I brought under your notice the Land Question, and the extraordinary development of agricultural production in America. Since that time an entire session of parliament has been devoted to the passing of the Irish Land Act. The heavy losses sustained by the English and Scotch farmers by an unprecedented series of bad harvests, must compel early consideration, by the legislature, of the land question in this country. As it is a subject of the first importance, and one with which for more than thirty years I have been publicly identified, I think I cannot better occupy your attention on the opening of this session of the Society, than in placing before you some circumstances which it may be well to keep in view in legislating for its judicious settlement.

The extent of the pressure has been variously estimated. The loss has fallen chiefly on the wheat and sheep districts of the country, on the eastern and southern side of the kingdom, and the midlands. We may assume the actual loss of farming capital, from the calamitous seasons, at not less than the 120 millions lately stated by the Prime Minister, which is nearly one-third of the total farming capital. But though the loss has been general, it has been less in degree in the grazing than in the corn districts, in many parts of which more than the half of the farmers' capital has disappeared. The chief cause has been an unprecedented series of bad seasons, with only two good crops in ten years, and among the bad ones that of 1879, the worst of the century.

Our neighbours in western Europe appear to have been visited, though not so severely, with the same unfavourable weather, and consequently there has been a large decline of exported corn from Germany and France, the latter of which instead of exporting wheat has drawn considerable supplies from America.

On the other hand, a series of productive years and good prices have stimulated in an extraordinary degree the extension of wheat growing in the United States of America. In a single year they increased their acreage by an extent equal to our total growth. In the twenty years from 1840 to 1860 their wheat production rose from 10 to 20 million quarters; in the twenty years from 1860 to 1880 it grew from 20 to 60 millions,—and their extent of good wheat land is practically unlimited. The two great corn products of that country are wheat and Indian corn, in regard to the first of which this country, and western Europe generally, will become increasingly dependent on America, and the price of wheat here will be chiefly ruled by the production there.

But it is a most encouraging fact for British agriculture that, notwithstanding the enormous increase of foreign produce competing with it, the price maintains and in most cases increases its level. This will be seen in a table appended to this paper, which embraces a comparison of the imports into this country of the main articles of food, between the first five and the last five of the past twenty years. Reading it shortly, the imports of live cattle have increased 90 per cent. in quantity and 16 per cent. in price,—of sheep 150 per cent. in quantity, and 15 per cent. in price,—fresh meat 220 per cent. in weight, and 13 per cent. in price,—butter 75 per cent. in weight, and 16 per cent. in price,—cheese 135 per cent. in weight, and 8 per cent. in price,—while the only edible article of animal produce which has decreased in price is salted provisions, which have increased 250 per cent. in quantity, but diminished in price 7 per cent. In regard to corn, barley has increased 90 per cent. in quantity, and 10 per cent. in price,—oats 122 per cent. in quantity, and 14 per cent. in price,—but wheat, which has increased in quantity 75 per cent., has fallen 4 per cent. in price. English wool has suffered from the increase of foreign import, and the change of fashion, the price having fallen nearly 10 per cent. The fall in the price of wheat and wool, in the wheat and sheep counties, coupled with the mortality in sheep, presses very severely on these counties. But it is indeed remarkable that though the import of meat and provisions has nearly trebled, and that of corn has doubled, the price in every case except salted provisions, wool, and wheat, has increased. The decline in the price of wheat, on an import in the last year of three and a-half million tons, which is two-thirds of our whole supply, is as yet only 4 per cent. Barley and oats, the description of corn which the British Islands yield in perfection, have both increased in value, and would have risen more but for the check caused by the constantly growing imports of Indian corn, which now reach two million tons in a year,—a wonderful addition, at a moderate cost, to the nutriment and support of all animal life in the United Kingdom. But seeing so general a rise of price, in the face of imports of such magnitude, what would have been the condition of our increasing population if any effective curb had been placed on them?

In the ten years between 1871 and 1881, and chiefly in the latter part of the period, a considerable extent of arable land has been converted to permanent pasture. In that direction 828,000 acres of corn, and 228,000 acres of green crops have been absorbed, and an annual return therefrom of about eight millions sterling has consequently disappeared. For though the permanent grass has at the same time been increased by 2,208,000 acres, and two acres of grass thus substituted for one of arable, the live stock has fallen from its highest point in 1874 by 346,000 cattle and 6,856,000 sheep, a loss exceeding 18,000,000*l.* in value. This is a striking proof of the injury done to the grazing value of the finer grass lands, especially by the fluke disease in sheep, in addition to the actual loss of crops on the arable land, by the low temperature, excessive moisture, and defective quality of the seasons since that year. And to some extent it reveals also the contraction of the capital of the farmers, many of whom have been obliged to part with a portion of their complement of live stock in order to meet their engagements.

In considering the question, for the home producer, of the kind of produce in which he is best likely to succeed against his foreign competitor, the weight to be transported from great distances is very important. A ton of meat or provisions is six times the value of a ton of corn, and, as these are yielded by the land in about like proportions, the produce of six acres in the form of meat or provisions could be transported (if the rate of carriage were the same) as cheaply as that of one acre of corn. But provisions cannot yet be handled with the same facility as corn, and therefore the rate is higher. Still there can be little doubt that ingenuity will devise methods by which this difficulty will be largely overcome, there being so big a profit in every farthing per ton per mile that can be saved over a distance of four or five thousand miles. This is already showing itself in the more rapid proportionate increase which has taken place in the relative imports of the last twenty years, those of meat and other animal produce having increased 175 per cent., and those of corn 90 per cent. The proportion is already doubled, and the practice of conveying, over vast distances, that description of produce which can be packed in the least bulk, must prevail and extend.

It would seem not necessary therefore to overturn the general principle of the agricultural system under which British agriculture has attained pre-eminence. Mixed husbandry, corn and cattle, will continue to hold their ground. Our cattle cannot be reared without winter fodder, and that can be most cheaply found in the straw of the corn crops, which at once supplies food and yields manure. The value of straw, though not reckoned in money, is a large addition to that of the corn. The alternation of corn, and green crops, and grass, keeps the land refreshed. It proportions the work to the seasons, and by its variety elicits the skill of the cultivator, and gives employment to the labourer, and to the blacksmith, the carpenter, and the village shopkeeper. The country feeds the town not only with fresh provisions, but recruits it with fresh life. There will be still room for all conditions of men amongst us, and no need to convert the surface of England into a vast grass field. Those parts of the country in the western midlands, the west, and in Ireland, which by climate and soil are least fitted for corn, will go more into grass, but the "convertible" soils of the rest of these islands will, in the general interests, be most profitably continued under arable cultivation.

The wider competition to which British agriculture is now exposed, differs only in degree from that which our predecessors little more than a century ago sought to defend themselves. "It "is not more than fifty years ago," says Adam Smith, "that some "of the counties in the neighbourhood of London petitioned the "Parliament against the extension of the turnpike roads into the "remoter counties. Those remoter counties, they pretended, from "the cheapness of labour and land, would be able to sell their "grass and corn cheaper in the London market than themselves, "and would thereby reduce their rents, and ruin their cultivation. "Their rents, however," he adds, "have risen, and their cultivation "has been improved since that time."

In much the same spirit it was lately proposed in some quarters to reimpose a protective duty of 5*s.* on imported corn. But our vicinity to the best markets in the world, in our various centres of population, not now limited to London, gives us a natural protection much higher than this. The cost of transport from the western prairies, to our competitors in this market, at the lowest rate hitherto reached, is 1*s.* 6*d.* on a bushel of corn, which is a natural protection of 12*s.* on a quarter, and equal to 42*s.* an acre on the average produce of our wheat crops, and somewhat more on barley and oats. If this rate should, in the progress of invention and competition, be reduced by even so much as one-third, viz., to 1*s.* a bushel, we should still have a natural protection equal to the average rent of our corn land. Is it to be supposed that the British farmer, with his inherited and acquired skill, with the command of labour at a much lower price than that in America, and when legal security shall be given him for his invested capital, would, with this advantage, by which he starts on equal terms, be unable to meet his foreign competitor?

It has been indeed stated recently that the rates, tithes, and taxes which the English farmer has to pay are equivalent to, and do away with this natural protection, the idea being that the American producer is not weighted by local burdens. Rates and taxes in this country, so far as they can be shown to be inequitably imposed on the land, are undoubtedly a grievance which should be fairly readjusted; but it is a delusion to imagine that the producer in the United States is exempt from their burden. In those new countries all the conveniences which have been the slow growth of centuries here, have to be provided at once there. Roads, bridges, court-houses, jails, schools, churches, have to be constructed by the young colony from its own resources. The local taxation even in a comparatively old State, when I was in Ohio some years ago, exceeded 1 per cent. of the capital value of the real property of the State, which would be equal, at our rates of investment in this country, to nearly one-third of the annual rental of the land. And in regard to tithe, it is not of the nature of a rate, but is part of the rent, and is therefore itself subject to be rated. In so far as it is felt to be a hardship, there would be no great difficulty, if all parties interested would agree, in bringing about an arrangement by which the tithe owners as a class might receive from the State the average of their present net income, and the landowner would be gradually redeeming the tithe by paying the full amount direct to the State, for such a period of years as would extinguish it, on the same principle as tithes in Ireland have been dealt with in order to be redeemed.

There are two capitals employed in British agriculture, that of the landowner and that of the farmer. The first has hitherto been certain and safe, and therefore yielding a small return; the other speculative, and liable to seasons and competition prices, and requiring a much larger percentage to cover risk. The capitalist is content with 3 per cent. for his secure investment, which carried with it also influence and position. A farm worth 50*l.* an acre for the freehold, needs a further 10*l.* an acre to provide the farmer's capital for its cultivation. The landlord is satisfied with a return of 3 per cent. on his 50*l.*, while the tenant looks for 10 per cent. for management, capital, and skill, on his 10*l.* Suppose that the farmer has a capital sufficient to buy 100 acres at this price, and stock it, he would get for his 5,000*l.* invested in freehold, 150*l.*, and for his 1,000*l.* farm capital, 100*l.*, together 250*l.* But if he followed the custom of this country, and used the whole of his capital in cultivating another man's land, he would with his 6,000*l.* hire 600 acres, on which his return ought to be 600*l.* He, in truth, then trades on the capital of the landowner, practically lent to him at the low rate of 3 per cent., which he converts into a trade profit on his capital of 10.

We cannot make a comparison between this system and the extremely liberal terms offered by the Irish Land Act to those farmers who desire to become freeholders of their farms. For the price of land in Ireland is reckoned at twenty years' purchase, yielding a return of 5 per cent., which admits of the existing rent redeeming the freehold, on Government terms, in thirty-five years. The Irish farmer may thus become the owner of his farm by paying his present rent continuously for that time. But the British farmer cannot buy his farm for less than thirty years' purchase, which is equal to little over a 3 per cent. return, and which he could only redeem (even with the advantage of Government terms) by an annual payment one-half greater than his present rent. If, therefore, parliament were disposed to offer him the same assistance in order to acquire the freehold, he would be unable to use it with equal advantage.

It would thus appear that neither in our system of agriculture, nor in the principle of a divided but harmoniously working separate capital of landlord and tenant, would it be necessary or advisable to introduce in this country any essential change. If this be clearly recognised and admitted, we shall be able to concentrate our aim upon those practical questions affecting landowner and farmer in which the legislature can really afford assistance.

And first as regards the landowner. He is the nominal owner of five-sixths of the joint capital embarked in British agriculture, and upon him in the end ought to come the chief weight of any disaster that befalls it. But if his ownership is so hampered by entail and family settlements that he cannot use his position with the freedom of absolute ownership, he is disabled from bearing his fair share of such a strain as that which is now pressing on the land. Having only the income, when that ceases to come in, he is helpless. On this point I need not here further enlarge, as I entered upon it at some length in my address last year, and it has elsewhere received the most ample discussion from the most capable authorities. It is only by a fee simple ownership that a landowner in difficult times can do justice to his estate and his tenants. And if circumstances oblige him to sell part of the property in order that he may be better able to meet the claims upon the rest, the land in all probability will pass into hands more capable of rendering it fully productive; for the power to sell confers also the opportunity to buy. This question is now ripe for legislation, and we have the assurance of the Prime Minister that the great subjects of the devolution of land, the transfer of land, the registry of land, and the mode of borrowing on land, being subjects of great importance to all connected with land, will be dealt with by the present Government efficiently and fearlessly.

Let us now consider the question as it affects the farmer. And first it may be well to say a word or two upon that distinctive feature of British agriculture, the cultivation of the land by capitalist farmers, as compared with the peasant proprietors of other countries, or the small farmers of Ireland. Eighty-five per cent. of the cultivated land of Great Britain is held in farms averaging 168 acres, and 15 per cent. in farms of 50 acres and under. Of the 32 million cultivated acres, 27 millions are held by the class of considerable farmers, men employing labour, and using labour-saving machinery and other means by which labour is rendered most productive. The individual capital employed in the cultivation of the soil will average about 1,300*l.*, which is fully equal to the average capital of a French peasant proprietor. The Englishman, in fairly prosperous times, will make a 10 per cent. return upon the whole of it, or 130*l.* The Frenchman will receive 10 per cent. on only one-sixth of his employed in cultivation, and 3 per cent. on five-sixths sunk in the ownership of the soil—together, 53*l.* The 168 acres of the Englishman will afford an annual expenditure, on labour and tradesmen, of 250*l.* to 300*l.* The 22 acres of the Frenchman will not more than employ himself and his family. The average wheat crop in England is 28 bushels an acre; that of France barely 18. There seems thus no inducement to copy the French system.

Let us see how the comparison stands with the small farm system of Ireland. The average holding in that country is about 25 acres, and if we even reckon a capital of 8*l.* an acre employed by the farmer, and a return of 10 per cent., he would have but 20*l.* for the support of himself and his family. Nothing can be spared for economising or increasing production. A simple test of productive agriculture is the surplus that is left for rent after all the expenses of cultivation, including the interest of capital, have been provided for. To ascertain this I have applied the same principle to the two countries by taking the value of the agricultural crops and stock in Great Britain and Ireland respectively, but reckoning corn, cattle, and sheep at a rate one-fourth higher here than in Ireland, and yet the British farmer's rent, as shown by the land rental upon which income tax is paid, bears a proportion of 5*s.* 4*d.* to the pound of that value, and the Irish farmer's apparently only 2*s.* 8*d.* But the income tax assessment in Ireland is not, as in this country, upon actual rent, but follows the valuation for poor law purposes, which is much under the actual rent; and to that extent, whatever it may be, this comparison must be modified. But even if it truly represented the actual rent, it would not be matter of surprise that a system of husbandry which barely supports the farmer and his family should leave a smaller surplus for the landowner, the labourer, and the tradesman.

I can have no doubt therefore that the true policy in British agriculture is to strengthen and maintain it on its present lines, That the collapse here has been sharper and the losses greater than in Ireland is true, for we had more to lose. The want of sunlight and heat is more damaging to our principal crop, wheat, and to the greatly more artificial or intensive system of agriculture practised in this country. And the long continuance of lean years has cut deeply into farming capital, making such havoc as only a return of an equal continuance of good seasons can in any considerable degree restore. The evil is the more keenly felt that the loss has fallen mainly on the smaller part of the agricultural capital—the farmers' share of the joint venture. And the cry that has arisen, north and south, for legislative interposition, is the outcome of a feeling of injury that a natural calamity, which could not be foreseen or provided against, has been in large proportion left to be borne by the weaker part of the common interest on which it has fallen. For this, in the majority of cases, the nominal landowner is less to blame than the state of the law which fetters and incapacitates him. What the tenant in the more distressed districts requires is an immediate, though it may be temporary, reduction of rent, to keep him going till the better times come, which nature and legislative changes may more slowly bring round. But besides the actual loss of farming capital, the land in this country within the last ten years has become less productive. To restore the condition of the soil in an old country like this is becoming more difficult and costly. There are indeed silent natural processes going on towards that end, one of which, of wonderful power, in the form of worm-casts, has been discovered to us in the most recent work of Dr. Darwin. But as one generation follows another, more and more of its natural fertility is taken out of the land, and a correspondingly higher rate of farming is required to maintain it. There is, therefore, pressing necessity for land legislation, which on the one hand shall free the landowner from the shackles which prevent him dealing with it to the best advantage, and on the other give to the farmer that assurance of security to which his share of the capital is equally entitled.

Questions of this kind ripen slowly in this country. Thirty-one years ago, in speaking on this subject, I pointed to the practical grievances which interfered with the establishment of a sounder relation between landlord and farmer. "Do not the laws of entail "and settlement," I then said, "disable a vast number of proprietors "and disincline others from giving the relief and accommodation "to their tenants which they might give if they had the full

" disposal of their estates? Are not tenants and landlords mutually " conscious that almost every tenant is obliged to starve his farm " when he approaches the end of his occupancy for want of some " equitable means of securing repayment for unexhausted improvements? Is there not a fictitious competition for land promoted " by the present state of the law of distress in England, and of the " law of hypothec in Scotland, enabling a needy or shortsighted " landlord, with comparative safety to himself. to pit men of straw " against men of capital, running up the tenant's rents and limiting " their reasonable demands for improvements? These are practical " questions which have a direct bearing on the condition of agricultural tenants, which have happily not yet been appropriated " by either political party, and which are much more worthy of " the farmer's consideration than running after the *ignis fatuus* of " protection." These were topics pressing on the agricultural mind as we were entering upon our career of free trade, laid aside amid the growing prosperity of the people, and their consequent increasing consumption of agricultural produce, and now again brought prominently to the front by the continued losses of calamitous seasons, and the sudden development of an American competition which would have come upon us ten years earlier but for the check caused by the insurrection of the South.

To an old land reformer like myself the words of the Prime Minister, in one of his great speeches at Leeds, in regard both to landowners and farmers, are as the "light arising in the darkness." " It is of capital and immediate importance for the farmer, to see " that effectual and not abortive measnres are taken to secure the " whole interest of the tenants, not a part of that interest, but the " whole interest in his improvements, *and his interest as the law* " *may define it in his tenure.*" On this last point I withhold an opinion until the object and method shall be developed. For this must be done with due regard to the various interests concerned; first, the public, whose interest it is that the limited territory nearest to them should be kept in the highest state of productiveness, and next, the landowner, the farmer, and the labourer, to whose joint capital, skill, and industry the work of so doing has been entrusted.

" One great cause of the advance in civilisation and the arts," says Adam Smith, " is the increase of population, which, by keeping itself on a level with the means of subsistence, demands " fresh discoveries and inventions as much at one period as another, " and insures a continued improvement." In other words, necessity is the mother of invention, and that implies competition, without which the stimulus to improvement would be wanting. The competition principle is accepted in all professions, occupations, and business. In the law and medicine, the ablest men take the lead; in manufactures, the newest machines and the best taste; in the arts, the highest proficiency; in every branch of employment, honest and capable work. The whole standard of proficiency is elevated by the principle of competition. Agriculture is no exception to this rule if rightly exercised. But there are two interests at work which under the present state of the law may easily, and do often, become antagonistic and injurious. In all other occupations the individual capacity is personal, and attains and keeps its reward. But the cultivator of another man's land, when he leaves the farm, passes it, if increased by him in lettable value, to his landlord, without compensation,—the latter taking to himself the increased capital value, without giving to the man who assisted in the development of that increase, any share of it. It may be this share that Mr. Gladstone means by "the tenant's "interest, as the law may define it, in his tenure."

It would, however, be a great error in regard to British agriculture, to take any legislative step which should tend to alter the well recognised rule that the landlord makes all the permanent outlays required, and the tenant finds only the capital for cultivation. And it would be an equally mistaken policy to take any course which should diminish the landowner's interest in the continued improvement of his property. The measures indicated by the Prime Minister, when they become law, will place him in a position which will enable him to take his full share of the burden as well as the advantages of his position, and it is on every account desirable that the law for the better security of the tenant's capital and interest should be passed at the same time. It will indeed be a happy conclusion of a long pending controversy if such measures can be devised as will best tend to the continuous increase of production, by giving a distinct but united interest to both landlord and tenant in obtaining that result.

The Farmers' Alliance, an association which has done good service to the farmers by the Parliamentary enquiry into railway charges promoted by it last session, and is entitled to speak with a certain degree of authority on the subject, indicate two courses by which the value of the farmers' improvements might be ascertained, supposing that parliament should confer on the tenant a legal right to be paid for improvements made by him in the soil, and upon the property of another. First, that the amount of that payment should be assessed by valuation, subject to arbitration; or second, what they deem simpler and better, that the tenant should be entitled to a "marketable security" in those improvements, which he might sell at the best price in the open market. This they properly recognise as the introduction into this country of the

Ulster tenant right. Now there is some risk that such a mode of compensation would prove illusory here, for on large farms in Ireland there is little saleable tenant right, because for such farms there is little competition. Moreover, that right has grown up, and is founded on a condition of things which does not exist in this country. The Ulster tenant contends that his labour and capital have made the farm,—that buildings, roads, drains, and fences are all of his creation. That is not so here. The landowner in this country has two capitals in the land, the soil and all that is beneath it, and the buildings and other permanent works made by his capital upon it, and required for the accommodation of the people and the stock and crop of the farmer. On good agricultural land, worth 50*l.* an acre, the land will represent 35*l.* of that value, and the buildings and other permanent works 15*l.* It is seldom that the farmer can command more capital than what is needed for that fuller cultivation of his farm which the times require, and it is cheaper for him, even if he possesses a surplus, to avail himself of his landlord's capital for any permanent outlay that may be needed on the freehold.

Whilst the Ulster principle cannot thus be reasonably asked for here, the introduction of it would take away from the landowner that interest and intimate connection with his property which would induce him, as heretofore, to take his full share in the cost of its improvement. Nor would it be equitable to exclude the landowner, who holds five-sixths of the capital in the joint concern, from the choice of his future tenant. But the "marketable security" principle demands also the interposition of a Court to fix the rent for a future term, thus taking away from two parties (who, when the law of distress is altered, and improper preferences abolished, will stand on equal terms,) the right to contract with each other as men do in every other branch of business. This is a system of tutelage which has been found necessary in Ireland, where among the small holders the desire for land is almost a struggle for life. But tutelage means inaction and stagnation, living and acting under guardianship and restriction, which is the very position from which we desire to see both landlord and tenant in this country emancipated. The opportunity which young men now have of taking their capital to farm in the colonies, or in the United States, has provided an outlet which will greatly restrict over-competition for farms at home,—while landowners, no longer able to rely on a preferential claim on the property of their tenants, will give little heed to tempting offers from applicants with inadequate capital. And no Court can be either so much interested in, or so competent to judge of the value of a farm as the owner whose income depends upon it, and the farmer whose living must be made out of it.

I think, therefore, that the other principle is the better one. viz., that the compensation for the tenant's improvements should be ascertained as at present, by valuation, subject to arbitration. And I further think that if the Agricultural Holdings Act (1875) were made the rule of law in regard to the second and third classes of improvements, and the notice to quit were extended to two years, the first class might be left to the voluntary action of the landlords, while the most useful parts of the Act would at once come into operation, and prove a satisfactory guide both as to the objects of compensation, and the mode of assessing their value.

The improvements of the first class under that Act are those of a permanent character, which it is desirable that the landowners should in all cases execute, and in which the capital of the tenant can rarely be advantageously employed. But those of the second and third classes are very proper objects of investment for him, and for which he is justly entitled to legal security. The extension of the notice to quit from one year to two, when such legal security for his improvements is also given, would very much diminish the desire for a lengthened term of lease, which was the sole security the tenant heretofore possessed for reimbursement of outlay on improvements, and which could only be fully realised by letting the farm run down in the closing years of the term.

The position of the farmer would then be this: that he would hold a tenancy either under a lease for a term of years, or subject to two years' notice to quit, that on quitting he would be entitled, under the Agricultural Holdings Act, to reimbursement in terms of that Act for his outlays under the second and third classes of improvement; and finally, for the interest in his tenure, as appears to be contemplated by the Prime Minister, he would receive the amount which the law shall define as the value of that interest. Both parties would then have an advantage in maintaining the condition of the farm to the close.

The payments to be made to the outgoing tenant under the two classes of improvement specified by the Act are for an expenditure by him which remains unexhausted, and which his successor pays because he receives the benefit. This is no charge on the landlord, unless he retains the farm in his own occupation. But any payment which may be determined by legal enactment to be due to the outgoing tenant for his "interest in his tenure," in which he has been "disturbed" by the act of the landlord, is clearly due by, and ought to be fixed by law on, the landlord. In this question it is necessary to keep in view the entire interests affected. If too much care is given to compensate the outgoing tenant, beyond his rights, the loss will mainly fall on his successor, who to that extent will be crippled in his capital. The number of incoming tenants is obviously as great as the outgoing, and the interests of the public are on the side of the new tenants who have to carry on the productive yield of the land.

In order to bring tenants who are at present under an agricultural lease at once into the benefits of this arrangement, it might be enacted that they should have the option to surrender their lease and adopt the amended Act.

The plan here sketched has the great advantage of legislative simplicity. It adopts, with such changes as would render it effective, the machinery of an Act carefully elaborated in its details by the late government and parliament, with the addition of a new principle which might be made self-adjusting, and it would place both the landowner and farmer in a position of greater independence and equality. No further interference with freedom of contract is introduced than is necessary for a just security, and the interests of both parties, instead of being antagonistic, would under this amended principle naturally come to work in harmony towards the highest scale of agricultural production. For, in regard to arable land, it ought never to be forgotten that the cultivator has it in his power, if he be so minded, to reduce the capital value of the land, and that it is therefore against the interest of the landlord to force him in self defence to use this power by exacting the highest possible rent. But when the farmer feels that his land is so profitable that he would lose by being deprived of it, he will protect it from permanent injury, as he desires and expects to be further benefited by it.

In examining the various foreign articles of agricultural produce which come into competition with our own, it may be of interest to point out their relative importance. Wheat alone, worth 40,000,000*l.*, nearly equals in value all other edible articles, animal, corn, and vegetable. This does not include Indian corn, which we cannot grow in this climate. The wheat imported, if it could be grown with advantage in this country, would occupy 5 million acres of additional land. Next to it is butter, of the value of 12,000,000*l.*, which, if produced at home, would demand upwards of two million additional acres. Then barley and oats, together of the value of 9,300,000*l.*, which, if grown in this country, would require an additional $1\frac{1}{2}$ million acres. To produce the live cattle and sheep, and the cheese imported, together of a value of 15,000,000*l.*, would call into requisition another three million acres. In each one of these I believe there is ample room for successful home competition, if each man goes with confidence into that special branch for which his soil and climate, and facility of market, offer him the surest probability of success. In regard to wheat, barley, and oats, he must consider the value of the straw in addition to the corn, for it is with him either a marketable article (with which the foreigner cannot compete), or an article of nearly equal value as fodder for the live stock on his farm. In the production of milk, of which the consumption is rapidly extending, there is no foreign competition, and it could be increased in this country to any extent if the profits were not so largely appropriated by the intermediate agent between the producer and consumer. A dairy farmer can barely make 2*d.* a quart for his milk at the nearest railway station, and for this the dealer gets 5*d.* from his customers in town. Another ½*d.* a quart would enable the farmer, within practicable reach of the consumer, to make a larger profit by selling his milk than in any other form in which he can at present use it. And, if we desire to keep to ourselves a substantial share of the 12,000,000*l.* now paid for foreign butter, we shall have little difficulty in doing so, in those parts of the country more remote from large populations, by establishing butter factories, to which milk from the surrounding districts could be sent to be converted into butter of the best quality, by the best known modern processes, and which could be warranted to be free from all modern foreign adulteration. When the landed interests of this country shall be placed on all points in the most favourable conditions for mutual co-operation, we would be wanting of faith in the enterprise and capacity of our own people if, with the immense advantage of the best market at our doors, we should be afraid to compete with the foreigner in the production of any article suited to our climate and soil.

For this is indeed a great interest on which I have ventured to offer these remarks for your consideration. It represents one-fourth of the entire capital of the United Kingdom, and in one form or another gives an income and employment to nearly an equal proportion of its inhabitants. It far exceeds any other single interest in this country in importance, influence, and strength. Possessing, till within very recent years, a commanding power in the legislature, that power had been mistakenly used to maintain in fetters, and consequent stagnation, a business which can only thrive by expanding in full proportion with the other business interests of the country. An unequalled period of calamitous seasons has discovered the weakness which had escaped observation during the peaceful and prosperous years enjoyed by this country, while our neighbours, west and east, were wasted with war. But the blow at last has fallen; landlord and tenant are heavily smitten by it, and we will trust that the legislature, by a wise and timely effort, will devise and carry through such measures in the approaching session of parliament, as shall give freedom to the landowner in his future dealings with the land, and proper security to the farmer for his capital and enterprise. The movement that must follow the unshackling of this great and leading industry would be felt in every trade, and in every village and country town. And the third branch of the agricultural interest—the labourer—would reap the benefit of it in full proportion with the rest.

TABLE I.—*Statement showing the Quantities and Average Prices of the undermentioned Articles Imported from Abroad in the First Five and the Last Five Years respectively, of the Twenty Years from* 1860 *to* 1880, *showing also the Increase or Decrease in each.*

	1860-64.	1875-79.	Average Price.		Increase per Cent. in		Decrease per Cent. in Price.
			First Five Years.	Last Five Years.	Quantity.	Price.	
	No.	No.	£ *s.* *d.*	£ *s.* *d.*			
Live cattle	692,183	1,237,683	17 – –	20 – –	90	16	—
Sheep	1,859,645	4,738,049	2 – 5	2 6 4	150	15	—
	Cwts.	Cwts.	Per cwt.	Per cwt.			
Meat	2,222,089	7,226,621	1 13 9	1 18 2	220	13	—
Bacon & hams	5,134,956	17,853,708	2 12 6	2 9 1	250	—	7
Butter	4,911,580	8,606,591	4 17 6	5 12 4	75	16	—
Cheese	3,584,716	8,571,452	2 9 –	2 12 9	135	8	—
			Per quarter.	Per quarter.			
Wheat	172,218,000	298,128,000	2 9 9	2 7 8	75	—	4
Barley	31,478,000	59,485,000	1 14 4	1 17 6	90	10	—
Oats	27,899,000	62,803,000	1 2 5	1 5 4	122	14	—
			Per cwt.	Per cwt.			
Indian corn ...	52,000,000	170,000,000	– 7 –	– 6 –	225	—	14
Potatoes	858,000	7,357,000	– 5 –	– 5 6	750	10	—
			Per lb. 1868-72	Per lb. 1876-80			
Wool	—	—	– 1 4½	– 1 3	—	—	10

PROCEEDINGS *on the* 15*th* NOVEMBER, 1881.

MR. SHAW LEFERVE, M.P. said—Mr. Caird and Gentlemen, I have very great pleasure in rising to move a vote of thanks to Mr. Caird for his most able, interesting, and instructive address. I believe I am right in saying that it is not usual for the members of this Society, after listening to the presidential address, to discuss the details of it. But it has not been unusual for the gentleman who has charge of a motion for a vote of thanks to the President for delivering his address, to offer some few remarks without entering on matters of a very controversial character. Mr. Caird, in the first place, entered at some length and in a very interesting manner upon the question of the price of agricultural produce, and showed us that, with the exception of wheat and, I think, of wool, there has been a considerable rise in the price of almost everything. In the case of fresh meat of all kinds, butter, cheese, and a variety of other articles, there has been a very considerable rise during the last ten or fifteen years. At the same time it is an unquestionable fact that the agricultural classes of this country have during the last five or six years passed through a very serious crisis, and their losses have been very considerable. Mr. Caird stated that in the aggregate he believed their losses had not been less than 120 million pounds in that period. It is quite clear, therefore, that even if prices have risen on the great bulk of agricultural produce, that rise in price has not been sufficient to compensate the tenant farmers for the very serious deficiency in quantity and bulk. In the case of corn, not only has there been a very grave deficiency in produce during the last ten years, but there has also been some reduction in prices, and inasmuch as in previous years it was generally the case that a deficiency in quantity was compensated in part, if not in whole, by a rise in price, when you look at the last ten years and find that the deficiency in quantity has been accompanied by a fall in prices, it is easy to understand what is the state of those farmers who depend mainly on wheat for their returns. Now I confess when I look back at the last ten years, and compare the production of wheat with that of previous years, I am surprised at the extraordinary extent of the calamity which has fallen on the British farmer. I believe it was impossible that anybody could have anticipated so many bad years in succession as have occurred during these periods. Mr. Caird has told us that during the last ten years there have been only two in which the production of wheat for the year has been above the average. Some little time ago I had occasion to look at these figures myself; and comparing the last ten years with the two previous periods, I observed these facts,—in the first place, within the first period of ten years the average production of wheat was about an average, which I will put at 100. In the next ten years the average production was somewhat above the average in each year, about 8 per cent. above the average. In the last ten years the average has been 16 per cent. below the average, that is to say, only 84 as compared with the average of 100. Two years only out of those ten has the production of wheat been above the average, whereas in the last five years of that period there has been only one year in which it has been above; and in 1879, as we all know, we had the worst year, perhaps, of the whole of the century, and the production of wheat averaged no more than 55 per cent. as compared with the 100 just mentioned. Therefore I think it is easy to explain what the losses of the farmers have been due to, and especially those who depend on wheat production. Now what has that fallen price been due to? I think if anybody looks at the figures and compares prices with those of excessive years, he will perceive that about the year 1874 or 1875, there arose crises which operated greatly on the prices of wheat in this country. I believe these were in the main the extraordinary depression of trade in America, which led in the first place to immense extension of agricultural production, to large numbers of people going out. leaving the commercial towns there and entering upon farm operations, and partly also to the fact that whilst we suffered in successive years from bad harvests, the Americans enjoyed extremely good harvests, far above their average. Therefore we have had a combination of circumstances singularly unfortunate to the British farmer—a very low production in this country and a very high production, coupled with the depression of trade, in America. With regard to the future I cannot speak with any very great confidence, but I recollect some two years age speaking on the subject. I ventured to point out that a day might come when we should see a light production in this country combined with a low production in America, and that whenever that should occur, inasmuch as we are now so much dependent upon America for wheat, we might have very high rates for wheat. I believe that would have occurred in this very year we now speak of if it had not been for the unfortunate weather which occurred during harvest time. Those farmers who had been fortunate this year in getting their wheat in in good condition have realised very high prices, and these have been due in the main not to the failure of production here, but to the fact that there has been to a great extent failure in the wheat producing countries of America. I hope as regards the farmers that they may look forward to getting the average value for their production of wheat, and I concur fully in the hopeful expressions which have fallen on this subject from Mr. Caird. He then proceeded to dwell upon questions which affect agriculture in this country, more especially those of entail and settlement, so far as they affect the inflow of capital into the land of this country. I heartily and thoroughly concur with all he said. All I can say is that at the present moment these defects are visible to a degree much more than in ordinary times. I could mention many cases where landowners have been injured to an extraordinary extent by the difficulties created through these entail settlements. There is the case of a friend of my own, who a few years ago had property which he valued at 12,000*l*. a-year. He had family charges of about 4,000*l*. a-year, so that he believed himself in possession clear of about 8,000*l.* a-year. Difficulties, however, have come upon his property. His tenants have been unable to pay, and he has been obliged to make heavy reductions, farms have been thrown upon his hands, he is the tenant for life only, and has been obliged to raise money at the rate of 12 per cent. to work the property, paying that rate because he can only borrow on his own life interest, and has to insure his life against the life of his son. The case is aggravated by the fact that his son is in that condition of health which makes it impossible that he can ever come to an agreement with his father to get rid of the family entails. Being unable to borrow money except at this rate, he is in respect of much of the property completely at the mercy of his tenants. Therefore things have gone on from bad to worse, until out of an estate which he believed was worth 8,000*l.* a-year, he has latterly received absolutely nothing, and is obliged to live abroad. It may be said, why was this gentleman unable to sell his property under the ordinary law with the consent of the trustees? I believe that his family settlement might possibly have enabled this to be done, but it is coupled with the condition that the proceeds of any such sale must be reinvested again in land, and the result of this would be to leave him no better off after the sale than he is now. This is only one of many cases showing the extreme difficulty landowners are under at this moment. Mr. Caird next entered upon the very vexed question of tenants' compensation, and I was very glad to hear the remarks he made on the proposals which had come from the Farmers' Alliance with reference to the possible means of compensating tenants for their improvements. I entirely agree with all he said on that point. I believe it would not be wise to adopt any of those schemes for tenants' improvements which run in the direction of permitting the sale of the tenants' interest to third parties without the consent of the landlords. Such processes are framed on the model of the Irish Land Act. I may say I was one of those who warmly supported the Irish Land Act on account of the extremely exceptional condition of Ireland, not only because of the existence of what has been called the land hunger, but from the fact that from time immemorial the Irish small tenants have themselves effected all the permanent improvements, and that had created an interest on their behalf, part in the soil, and entitled them to consideration. It was shown beyond all question that such was the tone of society in Ireland, such is the love which these small tenants hold for their land, that they are willing to submit to any rise of rent rather than be turned out of their holdings. Therefore it occurred that landlords, although the law undoubtedly recognised the right of the tenant to the value of his improvements, could raise the rents on the land to such an extent that the tenant practically lost the value of all his improvements; that being the case, the only way of protecting these small tenants was to intervene on the part of the law tenable some court to decide what the rent should be, and to facilitate the free sale of land. But I say this, that every argument that could be used in support of the Irish Act would fall to the ground in the case of England, where the circumstances are wholly different. Nobody can pretend to say that the English tenants have effected the permanent improvements of their farm. I hardly know a single case of the kind. Permanent improvements have been as a rule effected by landlords, and nobody can pretend to say there is any hereditary succession in farms in England. There is not the same relation between landlord and tenant in England. The relations are formed purely on contract, and are not historical in their nature. Therefore I say every argument which has been used for the Irish Act fails absolutely to hold good in the case of England. But if you were once to admit the plan of permitting the sale of tenant's interests in England, without the consent of the landlord, you necessarily import the other principles of the Irish Act. It was argued over and over again, in the discussions on that measure, that if you once permitted the sale of the tenant's interests thus, there followed as a matter of course the necessity of a court to determine what the rent should be, because it was obvious that nobody would give money for the purchase of the tenant's interest, if the next year after purchasing that interest he was liable to have the rent raised upon it. I say therefore, that unless you are prepared to adopt the Irish Act to the full extent in England, you must not permit the free sale of the tenant's interest without the consent of the landlord. But even though this should not be conceded, it does appear to me that there are many ways in which greater protection may be given to the tenant's inprovements in England. I believe experience has proved that the Agricultural Holdings Act is not satisfactory and is insufficient. It is permissive, and landlords and tenants have to a large extent contracted themselves out of it, or rather the landlords have "noticed" their tenants out of it, because it was a delusion to say that it was a matter of contract. It was permitted that one party should give notice to the other that he should be out of it, and in nine cases out of ten, after the passing of the Act, the landlord gave notice to the tenant that the Act should not apply. Such legislation is imperfect in its principle, and is certain to be a delusion. What the exact nature of the proposal for amending that Act and for securing to the tenants a greater proportion in respect of their improvements would be, I cannot now enter upon. All I say is, that much more may be done to give the tenants security for their improvements. Mr. Caird entered somewhat on another branch of the subject, on the possibility of promoting the purchase of those holdings by tenants on the principle adopted under what are called the Bright clauses of the Irish Land Act. I agree with him that it would not be wise or possible to adopt any such course. In Ireland the tenancies are very small, and a comparatively small sum of money will be sufficient to enable a tenant to become owner of his holding. And the average price of land is such that the operation can be carried out financially in such a way that the tenant would not under it pay much more in the shape of interest and repayment of capital, than he paid previously in the shape of rent. It is coupled also in its operation in Ireland with a number of other questions of a social and political character, not equally important in England. But it must be obvious to anybody looking into the matter, that where you are dealing with farms, not of 10 or 15 acres, but of from 200 to 250 acres each, it would require a very large sum indeed from the State to enable the tenants to become owners. And I think apart from other conditions, the financial difficulty would be insurmountable. I do not think Mr. Caird has quite sufficiently appreciated the importance of ownership as a spur to improvement. Although I agree with him that it will not be possible to extend the principle of the Irish Land Act in respect of the transfer of land to England, yet I do hope greater freedom in the sale and transfer of land arising from abolition of primogeniture and entail, will result in the multiplication of ownerships of land. I already see that the effect of the general depression in agriculture has been greatly to multiply the number of cases in which ownership is connected with occupation. There are many cases in which landlords have been compelled to take their land into their own hands, and are cultivating it themselves. The fall in the price of land has also enabled not an inconsiderable number of people to purchase at a low rate, and to cultivate the land themselves, and the more this is spread throughout the country, the greater the inducements to everybody to expend capital to the utmost extent. I will not detain you longer, but will ask you to join with me in this vote of thanks to Mr. Caird for his extremely able and interesting address.

Mr. James Heywood, F.R.S., said, I beg with pleasure to second the vote in regard to an address which has upon a matter of considerable darkness, shed a ray of hope. It is one of the most comforting addresses I have heard upon a very difficult subject.

(The thanks of the meeting having been unanimously given,)

The President said, I beg to offer my cordial thanks to you for the kind reception you have given to my endeavour to place before you certain views in regard to this very important question. The only remark I have to make on the interesting speech of Mr. Shaw Lefevre is, that if I did not press the point to which he referred in the latter part of his observations, namely, the great advantage that would result from the more free transfer of land, in gradually adding to the smaller landholders in the country, it was not because I did not feel the great advantage that would thereby accrue. I entirely concur with him on that point.

Ontario

ADDRESS *of the* PRESIDENT *of* SECTION F, "ECONOMIC SCIENCE *and* "STATISTICS," *of the* BRITISH ASSOCIATION, *at the* FIFTY-FIRST MEETING, *held at* YORK, *in August*, 1881. *By the* RIGHT HON. M. E. GRANT DUFF, M.A., LL.B., F.R.S., F.R.G.S.

THE nature of the address with which it is my duty to commence the proceedings to-day, is commanded by circumstances. It must necessarily be historical, and take the shape of a rapid review of the fortunes of Section F since it came into existence.

This is, as we all know, the fiftieth anniversary of the British Association, but it is not the fiftieth anniversary of the section to which we more especially belong. That section was called into life at the Cambridge meeting in 1833, a year which will be long famous in English history in connection with a movement of a very different kind, a movement which was, indeed, the expression of the distrust excited in many minds by our parents, science and liberalism.

We were at first entirely devoted to statistics, to the "investigation," to use the words of the official recommendation of the section, "of facts relating to communities of men which are capable "of being expressed by numbers, and which promise, when sufficiently multiplied, to indicate general laws," and Professor Sedgwick, the president of the Association for 1833, in the address with which he closed the proceedings, carefully limited the functions of the section to the inquiries which furnish "the raw material "of political economy and political philosophy."

Our first president was Mr. Babbage, who lived on into our own times, and whom some who are here present must have known well, whilst among the names of those who gathered round him as a committee were those of Empson, Hallam, Jones, Malthus, and Lubbock.

Hardly had our section itself been created, than it produced the Statistical Society, which, in the words of a speaker at the Edinburgh meeting in 1834, "acknowledged itself the offspring of this institution," and was indeed one of its first definite results.

At the Dublin meeting in 1836, our section was again presided over by Mr. Babbage, who read a paper upon a subject which was destined to become, somewhat later, of great importance, on an experiment, namely, in the creation of co-operative shops for the supplying workmen with the necessaries of life, which, begun as far back as 1812, had come to an end in 1832.

On this occasion too, appears, for the first time in our records, the honoured name of Mr. William Rathbone Greg, then a very young man, who became, in after years, so well known as a writer upon some of the questions with which we are occupied, and who contributed a paper on the " Social Statistics of the Netherlands."

We are reminded of the vast changes which have taken place in our times when we observe, that at the Bristol meeting in 1837, Dr. Lardner pointed out as if it was a great matter, that the introduction of railways between various points had actually increased the number of travellers between those points in the proportion of four to one.

At Liverpool, in 1837, a committee was appointed for the advancement of Statistical Science, and the British Association volume for that year contains a report on the statistics of the Deccan by Colonel Sykes, which was creditable for its day; but the proceedings of our section at Newcastle in 1838 were of little interest.

In 1839, when we met at Birmingham, we had the honour to have Mr. Hallam for our chairman, but no record of anything which that great historian said or read on the occasion seems to have been preserved, nor are the minutes of the Glasgow meeting in 1840 at all more interesting.

The meeting of our section at Plymouth, in 1841, produced nothing that invites remark, but in the volume for 1842 there is a report on the vital statistics of the large towns of Scotland, drawn up under the authority of some of the members of Section F, which had a certain importance.

Our section was not very active at the Cork meeting in 1843, nor again when we met in this city in 1844.

The proceedings in 1845, 1846, and 1847, were somewhat more notable, but are very briefly reported, and the same may be said of all the years up to and inclusive of 1855. Observe that I am far from admitting that they were not useful in their day as stimulating discussion and leading to valuable legislation. They have had the fate of the heroes who lived before Agamemnon. The persons who made the brief *résumés* of the papers read in those years, which are to be found in our annual volumes, but ill-supplied the place of the " vates sacer."

The last meeting at which our section assembled under its old title and in its old conditions was that held at Glasgow in 1855, and our last president was Lord Houghton, then Mr. Monckton Milnes.

In 1856 at Cheltenham, a resolution was passed, I believe, on the initiative of that highly gifted, all accomplished and ever-helpful man, which changed the name of Section F, and made it, what it has remained ever since, the Section of Economic Science and Statistics.

On that occasion too, our proceedings were for the first time opened by an address, though that address, having been prepared before the resolution just alluded to was passed, dealt exclusively with the subject of statistics. That it was ably dealt with you will conclude, when I say that the author of the address was Lord Stanley, now Lord Derby, for even then, a quarter of a century ago, he had begun to display on all public occasions that wide knowledge and painstaking mastery of his subject, which have given him so great an influence amongst educated men of all parties in England, and which it is safe to prophesy will, when a sufficiently large selection of his addresses is rescued from the newspapers and published, give him in some respects a greater name with posterity than almost any statesman of our times. The main object of his address on this occasion was to urge the advantage of establishing a statistical department of Government, charged with the annual publication of such facts relative to the management of internal reform, as are reducible to numerical expression.

In 1857 Archbishop Whately, who was by that time far advanced in years, and no longer the Whately of the Oriel common-room, did not follow the example which Lord Stanley had set him, but opened our section with a few remarks of a rather obvious kind.

Our venerable friend Sir Edward Baines, in 1858, was perhaps also too brief, but he took skilful advantage of the revelations of Mr. Sidney Herbert's commission on the health of our troops, then fresh in the memory of men, to enforce the utility of statistics, and to show that arithmetic "which some thought so heartless, was "rising up as the most powerful advocate of the value of human life "and health, and of all that can purify and elevate society." He followed up his address, too, by an important paper on the woollen manufactures of England in general, and of Leeds, where the meeting took place that year, in particular.

1858 was, I may observe, rather exceptionally rich in good papers, which was hardly the case with 1859, when we were gathered together at Aberdeen under Colonel Sykes, then member for that city.

The address of Mr. Senior at Oxford, in 1860, was a protest against the unscientific character of some of the papers read in our section during the years that had elapsed since 1856. He explained that he used the word unscientific not dyslogistically but only distinctively, the tendency he blamed being that to stray across the bounds of science into the realm of art. "A science," he said, "aims only at supplying materials for the memory and judgment. "It does not pre-suppose any purpose beyond the acquisition of

" knowledge. An art is intended to influence the will: it pre-
" supposes some object to be attained, and it points out the easiest,
" the safest or the most effectual conduct for that purpose." He concluded by advising that we should keep as much as possible within the strict limits of statistics and of economic science as understood by the school to which he belonged.

In 1861 we met at Manchester, under the superintendence of Mr. Newmarch, who premising that there was some danger of undue importance being attached to what had been achieved in an age of physical discovery, vindicated the right of economic science and statistical inquiry to a high place amongst the agencies which have most contributed to the great advance which has lately been made by civilised mankind.

It was a year of important papers; one on the progress of Manchester from 1840 to 1860, by Mr. David Chadwick; another by Mr. Molesworth on the progress of co-operation in Rochdale; and a third by Mr., now Sir Edward, Reed, on the statistics of the iron-cased ships of the British navy, being amongst the most interesting.

The address of Mr. Edwin Chadwick to this section in 1862 is not, I think, printed in the annual volume, and Mr. Tite, who presided in 1863, made only a very few observations: but in both years some good papers were read, one by Mr. Herman Merivale upon colonisation, and by Mr. Dunning Macleod upon political economy, in 1862; and by Mr. Purdy, on the decrease of the agricultural population of England, in 1863.

The address delivered at Bath by Dr. Farr, in 1864, was one of the best to which our section has listened, and well worth recurring to. His object was to give a brief outline of the condition of statistical science at the time, and he succeeded admirably. It is indeed surprising how much matter of incontestable and permanent value he contrived to pack into twelve pages, and this although he sometimes diverged, perhaps, just a little into politics.

In 1865 the present Lord Derby again presided over us, treating *inter alia* the question how far our subjects ought to form part of the business of a strictly scientific association, and coming to the conclusion that our functions are rather to suggest and stimulate than to originate thought. He further spoke at some length and with many illustrations, of the use of the statistical method.

In 1866 we met at Nottingham, under the guidance of Professor Thorold Rogers, who discussed several of the questions that were prominent at the time, such as the statistics of the live stock in England, a subject brought into prominence by the cattle plague; the state of the money market in that year of panic, and the fears that were expressed as to the exhaustion of our coal supply. I notice too, in his address, a phrase marked by his usual epigrammatic felicity and which should be remembered: "The economist," he said, "is constantly labouring to refute men's hasty sympathies by "an appeal to their deliberate reason."

In 1867, at Dundee, I had myself the great honour of presiding over your deliberations, and we had a good many interesting papers relating to the statistics of the locality.

In 1868 our section was presided over by Mr. Samuel Brown, of the Society of Actuaries, who devoted his address to a rapid survey of the various questions, most likely to interest students of our science, which had come before the public since the Dundee meeting, viz., to technical education, to the relations between labour and capital, to the purchase of the electric telegraphs by the State, to weights and measures, to monetary conferences, and to insurance. Speaking of the latter subject, with which he was exceptionally qualified to deal, he observed: "Vital statistics are now assuming "a form which enable the most complicated problems of human life "to be dealt with as if they were certain and simple events, yet "little more than a century has elapsed since the attorney and "solicitor-general of that day, when reporting on the application "for a royal charter to the first society formed on scientific prin-"ciples for the assurance of life, objected to it on the ground that "its success must depend on calculations taken on tables of life "and death, whereby the chance of mortality is attempted to be "reduced to a certain standard. 'This is a mere speculation,' they "observe, 'never yet tried in practice, and consequently subject, "'like all other experiments, to various chances in the execution.'"

The petition was dismissed, but the society (the Equitable) was formed, and in spite of the gloomy prognostications at its birth, had afterwards, at one time, nearly 20 million pounds of assurances on lives in force together.

The proceedings at Exeter, in 1869, were opened by an address from Sir Stafford Northcote, in which, in addition to making some very curious comparisons between the statistics of Devonshire and Lancashire, he illustrated the working of the law of variation and the law of stability, pointed out the use of imagination in giving life to the details which statisticians accumulate, characterised the present as pre-eminently a statistical age, and spoke some words of warning, not unheeded, against an indulgence in our national weakness for waste.

At Liverpool, in 1870, we were presided over by Mr. Jevons, who amongst many important observations made the following, which should be had in remembrance if ever the relations of our section to the other parts of the British Association are again brought under review:—

"I have always felt great gratification that the founders of this "Association did not in any narrow spirit restrict its inquiries "and discussions to the domain of physical science. The existence "of this section is a standing recognition of the truth that the "condition of the people is governed by definite laws, however "complicated and difficult of discovery they may be. It is no "valid reproach against us that we cannot measure and explain, "and predict with the accuracy of a chemist or an astronomer. "Difficult as may be the problems presented to the experimentalist "in his investigation of material nature, they are easy compared "with the problems of human nature of which we must attempt "the solution. I allow that our knowledge of the causes in action "is seldom sure and accurate, so as to present the appearance of "true science.

"There is no one who occupies a less enviable position than the "political economist. Cultivating the frontier regions between "certain knowledge and conjecture, his efforts and advice are "scorned and rejected on all hands. If he arrives at a sure law of "human nature, and points out the evils which arise from its "neglect, he is fallen upon by the large classes of people "who think their own common sense sufficient; he is charged "with being too abstract in his speculations, with overlooking "the windings of the human heart, and with undervaluing the "affections.

"However humane his motives, he is lucky if he escape being "set down on all sides as a heartless misanthrope. Such was "actually the fate of one of the most humane and excellent of men, "the late Mr. Malthus. On the other hand, it is only the enlightened "and wide-minded scientific men who treat the political economist "with any cordiality. I much fear that, as physical philosophers "become more and more successful, they tend to become, like other "conquerors, arrogant and selfish; they forget the absurd theories, "the incredible errors, the long enduring debates, out of which "their own knowledge has emerged, and look with scorn upon our "economic science, because we are still struggling to overcome "difficulties far greater than ever they encountered. But again, I "regard the existence of this section as a satisfactory recognition "of the absolute necessity of doing our best to cultivate economic "subjects in a scientific spirit."

This address may be said to mark an epoch, because in the course of it the chairman was able, for the first time in English history, to use words which many active members of our section who did not live to hear them would have rejoiced to hear:—"I "am glad to say that in spite of all opponents we have an education "Act;" and he went on to advocate a great and unaccomplished reform, the applying to useful objects of the funds of our innumerable and most pernicious dole charities.

In 1871, at Edinburgh, we met under the genial rule of Lord Neaves, and it is curious to observe how the uncontrollable mirthfulness of that eminent judge kept breaking through the gravity of his address, and illustrating the old words:—

> "All things are big with jest, there's nought so plain,
> But may be witty if thou hast the vein."

It is likewise noticeable that although, as we have seen, we were statisticians first and economists only twenty-three years afterwards, Lord Neaves treats our section as mainly economic, and considers statistics as a mere accessory. This view, however, was not taken by the members of the section, who contributed that year some very important statistical papers, amongst them one of peculiar interest in the locality where it was read, on the scheme of the Merchant Company with reference to the great educational hospitals of Edinburgh.

At Bradford, in 1873, Mr. Forster did not deliver an address, but made a speech characterised by his usual vigour, hopefulness, and knowledge of affairs.

At Belfast, in 1874, the members of this section had the good fortune to do incidentally a great practical and immediate service, by bringing to an end a strike which had caused great inconvenience, and they received the thanks of the local authorities. The address to the section was delivered by Lord O'Hagan, and an interesting paper, read by Sir George Campbell, bore the (at first sight) rather startling title, "On the Privileges over Land wrongly "called Property."

Our Belfast volume, that of 1874, contains the report of a committee presided over by Lord Houghton, which was appointed to inquire into the economic effects of combinations of labourers and capitalists. That committee called a conference, which assembled at 22, Albemarle Street, where a deputation from the National Federation of Associated Employers of Labour met a number of persons representing labour, and discussed a variety of questions of common interest.

"The discussion at the conference," says the report, "was "carried on in the most friendly spirit, and, in the opinion of your "committee, with manifest utility towards the elucidation of the "questions at issue. From the employers your committee have, "moreover, received valuable written answers to their inquiries; "whilst the 'Beehive,' the principal organ of the employed, said "of the conference, 'The case was stated with great frankness, "'and the attack and defence was carried on in perfect good

" 'humour for three hours; and whether any conviction on either " 'side was altered or not, it was proved very distinctly that such " 'meetings, if held more frequently, could not fail to beget a " 'clearer view of the questions in dispute on both sides, and a " 'stronger disposition than now exists to arrange differences in a " 'friendly and peaceable spirit.' "

The address at Bristol in 1875 was delivered by Mr. Heywood, and contained much information as well about the trade as the educational facilities of the neighbourhood, while various papers of merit were read, including one upon national education by Mrs. Grey; one on the coal question by Mr. Jevons; and one on the value of European life in India by Dr. Mouat.

At Glasgow, in 1876, Sir George Campbell presided, and brought his great knowledge of India to bear upon various important problems.

Amongst other things he made the following observations upon the use of narcotics and stimulants:—

" I have been led into the suggestion that these things are very " much a matter of race, by observation of the very singular way " in which in Asia the population are divided into those who use " opium and those who use alcohol, according to race lines, even in " countries where the facilities of obtaining the one or the other are " precisely similar. In the east of India I found that the consumption of opium in the various districts was just in proportion as a " Turanian or Chinese element prevailed in the population. The " Aryan races of India never take to opium in a very great degree, " except in the case of the Sikhs, whose religion prohibits the use " of tobacco. Even in the districts where the poppy is almost universally cultivated by the ryots (and they supply the opium which " the Chinese consume) it is a happy fact that the native population does not take to the common use of opium; and there are no " greater symptoms of the ill effects of the drug than in districts " where it is very rare and dear—far less so than in districts where " the cultivation is not permitted, but where there is an Indo-" Chinese population. I cannot but think that such race proclivities open up an important field of inquiry."

Amongst papers that were read at Glasgow, a high place must be given to a most careful one by Professor Jack, "On the " Results of Five Years of Compulsory Education."

Lord Fortescue, in his address at Plymouth, in 1877, dwelt much on the population question, avowing himself an opponent of the views of Malthus and Mill, and claiming for his leaders Mr. Chadwick and Dr. Farr. He also spoke at some length upon the imposition of what he considered needlessly high fares and rates upon goods and passengers by railway, and recalled his own opposition to the policy of Sir Robert Peel in not treating railways as monopolies, whose powers should, for the sake of the public, be carefully restricted, and he further advocated making the union, instead of the parish, the unit of English administration under a county representative board.

It is difficult in conducting the proceedings of this section to hit the golden mean between being too abstract and too popular. In the year 1875 the pendulum swung perhaps a little too much to the popular direction, and subjects were discussed which were thought by some hardly compatible with the scientific character of the British Association. This led to a great deal of criticism, and in the year 1876 the question was raised—and raised by a very eminent person—whether we of Section F should continue to hold our place. The attack was able; the defence was not particularly brilliant, but the goodness of our cause or the leniency of our judges carried us through, and we were adjudged to have successfully restated the reasons for our existence. It was well, perhaps, that the question was raised, for out of this discussion came the elaborate and brilliant address—the most elaborate and brilliant to which this section has ever listened—which was delivered at Dublin by Professor Ingram, in 1878, on the position and prospect of political economy.

Professor Ingram recapitulated the philosophical conclusions he had endeavoured to enforce, as follows:—

(1) That the study of the economic phenomena of society ought to be systematically combined with that of the other aspects of social existence. (2) That the excessive tendency to abstraction and to unreal simplifications should be checked. (3) That the *à priori* deductive method should be changed for the historical. (4) That economic laws, and the practical prescriptions founded on those laws, should be conceived and expressed in a less absolute form. "These are, in my opinion," he says, "the great reforms "which are required both in the conduct of economic research and "in the exposition of its conclusions." He then proceeded to say that "if the proper study of mankind is man," the work of the association, after the extrusion of our section, would be like the play with the part of the protagonist left out. What appears to be the reasonable suggestion is, that the field of the section should be enlarged, so as to comprehend the whole of sociology. The economic facts of society, as I have endeavoured to show, cannot be scientifically considered apart, and there is no reason why the researches of Sir Henry Maine, or those of Mr. Spencer, should not be as much at home here as those of Mr. Fawcett or Professor Price. Many of the subjects, too, at present included in the artificial assemblage of heterogeneous inquiries known by the name

of anthropology, really connect themselves with the laws of social development; and if our section bore the title of the sociological, the studies of Mr. Taylor and Sir John Lubbock, concerning the early history of civilisation, would find in it their most appropriate place. I prefer the name sociology to that of social science, which has been rendered indefinite in common use, and has come to be regarded as denoting a congeries of incoherent details respecting every practical matter bearing directly or remotely on public interests which happen for the moment to engage attention. There are other societies in which an opportunity is afforded for discussing such current questions in a comparatively popular arena. But if we are to be associated here with the students of the other sciences, it is our duty, as well as our interest, to aim at a genuinely scientific character in our work. Our main object should be to assist in fixing theoretic ideas on the structure, functions, and development of society. Some may regard this view of the subject with impatience, as proposing to us investigations not bearing on the great and real needs of contemporary social life. But that would be a very mistaken notion. Luciferous research, in the words of Bacon, must come before fructiferous. "Effectual practice," says Mr. Spencer, "depends on superiority of ideas; methods that answer are preceded by thoughts that are true."

In 1879 the address was delivered by Mr. Lefevre, and a most timely and useful address it was, dwelling upon the relations between our agriculturists and those of the United States, with that clearness of thought, and, to use the famous Thucydidean phrase, painfulness in the search after truth, which one always expects in the writings and speeches of that very distinguished man. The address of 1880, by Mr. Hastings, has by some unfortunate accident not been printed in our annual volume.

With a view to giving you this brief sketch of the proceedings of our section, it has been necessary for me, of course, to look through those proceedings since its foundation; and I have been led to one or two conclusions which I should like to lay before you.

In the first place, I greatly doubt whether our system of publishing epitomes of papers is a good one. These abstracts of abstracts are indeed most ghastly reading. I think it would be worth while for those who organise the business of the section to consider next year whether it might not be better to print good papers upon local statistics in full; such will hardly in many cases have any other means of being introduced to a wider public, whereas statistical papers of more general interest may be safely left to the care of our first-born, the Statistical Society. It would be enough to mention in our annual volume that they had been read before us, without attempting an analysis which can hardly be satisfactory to the author, and must be dismal to the reader.

In the second place, I am inclined to think that we must adopt the policy recommended by Professor Ingram, and widen our basis, taking care at the same time to treat things scientifically, that is to say, as they are or were, and to avoid, as much as possible, dealing with them as they ought to be. The Social Science Association is better, I think, fitted than the British Association for many even good papers that have been read in this section.

Still more imperatively necessary is it absolutely to refuse a hearing to all who wish to discuss burning questions of English politics, even although they have a scientific side. However disagreeable it may be to individuals to have to take elsewhere papers on which they may have bestowed much trouble, our first duty as a section is to continue to exist, and we shall assuredly not continue to exist if we do not steel our hearts against their complaints.

Another great reform would, I conceive, be accomplished if the authorities of the Association were to encourage persons to read in this section accounts of valuable works on economical and statistical subjects appearing in foreign countries.

It only remains for me to thank you for the patience with which you have listened to an address, which, although I think under the circumstances necessary, has contained little or nothing that is new. I must add that I accepted the honour of presiding over this section some months ago, and before a very considerable change had come over my life. It has been a great pleasure to me to be able to fulfil my engagement, but as I leave England next month, and am necessarily very much occupied, I am sure you will forgive me if I resign the presidency of the section into other and abler hands this afternoon.

STATISTICAL OBSERVATIONS *on the* GROWTH *of the* HUMAN BODY (MALES) *in* HEIGHT *and* WEIGHT, *from* EIGHTEEN *to* THIRTY YEARS *of* AGE, *as* ILLUSTRATED *by the* RECORDS *of the* BOROUGH GAOL *of* LIVERPOOL. *By* J. T. DANSON, ESQ.

[Read before the Statistical Society, 18th January, 1881.]

THE subject of this paper, lying as it does somewhat beyond the usual range of our inquiries, seems to need some apology. It is our province, however, to collect facts, and especially such as have a national value; and the excellence of a nation may be said to have its main root in a sound knowledge, and an apt use, of the human body. The animal man, as he exists in these islands, is the especial object of our patriotism. His good physical condition is the prime object of our public policy; but even his average height, and weight, when at maturity, or at what age he really attains that condition, may be said to be yet unknown. The delicacies, or the prejudices, of our time compel us to seek all such knowledge under difficulties. We have to resort, almost exclusively, to the dregs of the population. Hence we as yet know very little, and that little imperfectly; and hence the comparative poverty of the material, on a subject which might seem very simple and familiar, to which I have to invite your attention this evening.

About twenty years ago I had occasion to visit the borough gaol of Liverpool. It is at Walton, a few miles from the town. It is large, and was then recently built; and its mode of management was then, and I believe still is, about as good as any yet in use. Under the law then in force, each prisoner committed for more than one month was, as he entered, and again as he left, measured for height, and also weighed. The purpose of this practice was to afford to the medical officer in charge of the prisoners, some precise data on which he might base his observation of the effect upon them of the prison treatment. The practice of measuring and weighing the prisoners on their discharge was afterwards abandoned.

Bearing in mind the elaborate work of the eminent Belgian statist, M. Quetelet, "On Man, and the development of his Faculties," and remembering the very narrow basis on which, for want of fuller material, he had been compelled to found some of his most important conclusions, I saw here an opportunity of obtaining some valuable additional information. Having got access to the gaol records, I found them, on examination, quite worth the labour to be given to them; and selected the figures relating to the years 1857 and 1858, as likely to afford a fair sample of the new material thus made available. The results, as analysed and thrown into a tabular form, were laid before this Society in November, 1861.* From these figures I found that only one inference of any value could, with any degree of certainty, be deduced: that being, that the men thus passed under examination did not, on an average, attain their full height, or their full weight, much, if at all, before 30 years of age.

The method I adopted in the first instance, was to take as a basis of average, from the entire list I had obtained of upwards of 4,800 entries of prisoners weighed and measured during the two years selected, the first hundred at each age, from 18 to 30, inclusive. I found I could get a full hundred at each of these ages, excepting only the age of 29. At that age there were only ninety-five in all. Up to the age of 22 I found a clear and nearly regular increase of height and weight with each additional year of age. After that the results became very irregular, though still showing, on the whole, an increase of both height and weight, up to the age of 29. For several of the ages from 23 to 28 years of age, therefore, I increased the number taken to form the average, from a hundred upwards, as far as the materials in hand permitted. But this only slightly changed the results, and left them still strongly marked with the irregular and anomalous character at first observed. For instance, the average height brought out for the age of 24 was still considerably less than that for 22, and the height for 26 less than that for 25 years.

This persistent irregularity induced me to refer, with some hope of an explanation, to a suggestion made some years before, by M. Millot, a French statist. After a careful examination of the figures resulting, during a long series of years, from the measurements of the annual draft of conscripts in that country, he had observed that the men of the same age, brought forward in successive years, differed considerably in their average height; and on a comparison of these returns with those of the annual prices of corn in the localities in which these men were born and reared, he observed some coincidence of deficient height in the conscripts with high prices in the years of their gestation and infancy. This led him to the conclusion that wherever a deficiency occurred, it might be due to early want of sufficient nutriment; and thence to defective harvests. But a corresponding examination of the figures before me in 1862 did not afford me any sufficient ground for supposing that the anomalies I had met with could be traced to this cause.

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* See the Society's *Journal* for March, 1862, part 1, vol. xxv.

I therefore simply recorded the figures as they stood, for the benefit of future inquirers; and, for the time, dropped the subject.

About ten years afterwards, appeared the very valuable "Manual "of Practical Hygiene" of the late Dr. Edmund Parkes. I observed that, imperfect as my paper was, it had attracted his attention; and was to some extent relied upon as evidence of the mean height and weight of the men of the lower classes in England, at the ages dealt with.

Availing myself of the lapse of time, I then determined to ascertain the effect of a more extended use of the records of the same gaol; and, when the year 1878 had expired, I sought, and readily obtained, the sanction of the Home Secretary, and had extracted the weights and measurements of the prisoners received in the two years 1867-68, and again in the two years 1877-78: thus extending the basis of the inquiry over three periods of two years each; and these occurring at equal intervals during a total period of twenty-two years.

From these papers I have framed the tables I now lay before the Society.

During the eighteen years which have elapsed since I read my former paper, much larger masses of material than those handled by Quetelet have been got together on this subject, and the proper method of treating them has been developed with considerable success. But facts collected in other countries cannot be deemed applicable to the population of this; and I find in the figures collected by others in this country nothing to supersede, or even to elucidate my own. These have reference exclusively to criminals; and they would seem to differ, specifically, from those obtained elsewhere. They are also the only figures extending, year by year, from 18 up to 30 years of age.

And now, before inviting your attention to the results, I will state, shortly, what I have learned, or have reason to believe, as to the manner in which these figures have been obtained, and the degree of reliance we may perhaps safely place upon them.

First, as to the mode of measuring and weighing. The apparatus used seemed, when I saw it, to be well suited to the purpose—accurate and uniform in its operation, not easily put out of order, and requiring no special skill in its use..

The prisoner, on entering the gaol, is taken to a room kept for the purpose, and is there registered. As part of this process, he is put on to a broad metal plate, near the level of the floor. As he depresses this plate, his weight is indicated on a lever; and a projecting arm, sliding on a metal bar behind him till it touches his head, marks his height on the bar. The weights are taken to pounds, and the heights to quarters of an inch; and are at once, with other particulars, recorded in a book close at hand. The process, with one exception, to be noted presently, appears to be the same now as it was twenty years ago. The duty of registering the prisoners being allotted to a special officer, and usually retained by him for a long period, being performed always in the same place, at about the same hour in the day, and with the same apparatus, and under similar surrounding conditions, is probably applied with a good deal of uniformity. But, as I shall have occasion to show, the work is at present done under difficulties, which tend to defeat any attempt to use its results for such purposes as ours.

Until January, 1878, the prisoners were measured in their foot-covering, whatever that might happen to be. At that date the practice was changed, by taking off their boots or shoes while being measured. This, of course, introduces a material irregularity into one group of the figures before us. But I am not disposed altogether to regret this. Whenever and wherever we may be able to extend these observations, if it is deemed desirable to do so, we shall invariably be met by the difficulty here suggested. To get the heights of men (who are not in prison) with their foot covering, will always be much easier than to get them without; and to learn in time something of the average effect of such covering is therefore desirable. On being informed of this change, I separated, as well as I could, the measurements taken after it; and so framed an additional table for the last group (that of 1877-78). But it is obvious that only a comparison of *the same* group of men, with and without foot covering, can give us any clear indication of its ordinary effect on the apparent height; and should the Society deem the subject worthy of further attention, it would be advisable, and probably not difficult, seeing that our prisons are now all under the control of the Home Office, to have these measurements taken, for a time, in a few selected districts, with and without such covering: so that, as to the imprisoned population at least, we may have some trustworthy data for the allowance to be made.

So much for the probable accuracy of what we are told as to the height and weight of these men; but for our present purpose accuracy on these points is of little value, except in so far as it may be coupled with accuracy in the statement of the age of each prisoner. Here there is ground for doubt: ground which I fear we shall not easily get rid of. The officer making the record has to rely upon what he can gather from three sources of information; and these, whether taken separately or together, cannot be deemed at all conclusive. First, there is the statement of the prisoner. The value of this of course depends on his knowledge of the truth, and his willingness to tell it. But it is certain that many men of the class which mainly supplies these prisoners are imperfectly informed as to their own age; and it is perhaps hardly less certain that, when they know it, they are little disposed to shape their answer by what they do know. They are moved rather by what they wish to have believed. There is, however, between the ages of 18 and 30 no very strong temptation wilfully to mis-state their age: the diet and other treatment being uniform after the age of 16.

Besides the statement of the prisoner, there is his appearance; and it is probable that an officer habitually charged with the duty acquires some skill in the use of this test, as a check on any wide mis-statement.

And, finally, there is such previous personal acquaintance as the officer, or those about him, may have with the prisoner; and this check comes into operation in many instances.

I now turn to the tables constructed from the whole of the figures before me. They are six in number. Tables A, B, and C, give the heights of the men measured in the three periods, 1857-58, 1867-68, and 1877-78. Tables D, E, and F, give the corresponding weights for these three periods.

TABLE A.—*Heights*, 1857–58.

Age.	Number Measured.	Average.	Maximum.	Minimum.	Maximum over Average.	Minimum under Average.	Maximum over Minimum.
		Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
18........	200	64·29	71·0	58·5	6·71	5·79	12·5
19........	200	64·87	71·5	58·25	6·49	6·62	13·11
20........	200	65·19	73·0	61·0	7·81	4·19	12·0
21........	200	65·78	72·0	60·5	6·22	5·28	11·5
22........	200	66·21	73·0	60·25	6·79	5·96	12·75
23........	200	66·17	73·0	59·0	6·83	7·17	14·0
24........	185	65·94	73·0	57·0	7·06	8·94	16·0
25........	200	66·30	72·0	59·0	5·7	7·3	13·0
26........	130	66·15	73·75	57·5	7·6	8·65	16·25
27........	138	66·38	71·75	61·0	5·37	5·38	10·75
28........	100	66·65	73·0	61·0	6·35	5·65	12·0
29........	95	67·02	72·5	61·25	7·48	5·77	13·25
30........	100	66·36	73·0	60·75	6·64	5·61	12·25
	2,148	—	—	—	—	—	—

TABLE B.—*Heights*, 1867–68.

Age.	Number Measured.	Average.	Maximum.	Minimum.	Maximum over Average.	Minimum under Average.	Maximum over Minimum.
		Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
18........	299	64·94	70·75	53·5	5·81	11·44	17·25
19........	249	65·56	77·0	58·75	12·44	6·71	19·25
20........	260	66·10	72·75	56·25	6·65	9·85	16·5
21........	247	66·31	74·0	61·0	7·69	5·31	13·0
22........	294	66·0	74·0	59·0	8·0	7·0	15·0
23........	237	66·39	73·5	58·75	6·11	7·64	13·75
24........	251	66·25	74·0	59·25	7·75	7·0	14·75
25........	193	66·78	75·5	56·5	8·72	10·28	19·0
26........	176	66·54	73·0	59·5	6·46	7·04	13·5
27........	175	66·87	73·25	61·0	6·38	5·87	12·25
28........	161	66·7	76·0	60·0	9·3	6·7	16·0
29........	108	67·33	74·5	56·5	7·17	10·83	18·0
30........	184	66·86	73·5	61·0	6·64	5·86	12·5
	2,804	—	—	—	—	—	—

TABLE C.—*Heights*, 1877–78.

Age.	Number Measured.	Average.	Maximum.	Minimum.	Maximum over Average.	Minimum under Average.	Maximum over Minimum.
		Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
18........	433	64·08	69·75	57·5	5·67	6·58	12·25
19........	365	64·74	70·0	59·0	5·26	5·74	11·0
20........	365	65·05	70·75	59·5	5·70	5·55	11·25
21........	369	65·4	70·75	58·25	5·35	7·15	12·5
22........	406	65·65	71·75	59·25	6·10	6·40	12·5
23........	320	65·42	72·25	59·0	6·83	6·42	13·25
24........	307	65·42	71·75	58·0	6·33	7·42	13·75
25.......	235	65·66	73·0	59·5	7·76	5·74	13·5
26........	235	65·64	72·75	57·0	7·11	8·64	15·75
27........	216	65·82	73·0	58·5	7·18	7·32	14·50
28........	241	65·73	74·25	60·0	8·52	5·73	14·25
29........	135	66·33	74·0	59·25	7·67	7·08	14·75
30.... ...	192	65·52	72·25	61·5	6·73	4·02	10·75
	3,819	—	—	—	—	—	—

TABLE D.—*Weights*, 1857–58.

Age.	Number Weighed.	Average.	Maximum.	Minimum.	Maximum over Average.	Minimum under Average.	Maximum over Minimum.
		Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.
18........	200	122·35	158·0	90·0	35·65	32·35	68·0
19........	200	129·66	182·0	99·0	52·34	30·66	83·0
20........	200	132·8	176·0	105·0	43·2	27·8	71·0
21........	200	133·83	170·0	101·0	36·17	32·83	69·0
22........	200	139·31	184·0	98·0	44·69	41·31	86·0
23........	200	141·89	195·0	109·0	53·11	32·89	86·0
24........	185	142·0	180·0	110·0	38·0	32·0	70·0
25........	200	143·79	190·0	110·0	46·21	33·79	80·0
26........	130	142·06	190·0	96·0	47·94	46·06	94·0
27........	138	144·27	192·0	101·0	47·73	43·27	91·0
28........	100	142·62	184·0	105·0	41·28	37·62	79·0
29........	95	145·53	194·0	116·0	48·47	29·53	78·0
30........	100	141·55	197·0	113·0	55·45	28·55	84·0
	2,148	—	—	—	—	—	—

TABLE E.—*Weights*, 1867–68.

Age.	Number Weighed.	Average.	Maximum.	Minimum.	Maximum over Average.	Minimum under Average.	Maximum over Minimum.
		Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.
18........	299	124·81	193	101	68·19	23·81	92
19........	249	129·68	196	100	66·32	29·68	96
20........	260	136·82	181	108	44·18	28·82	73
21........	247	138·92	174	105	35·08	33·92	69
22........	294	138·4	179	101	40·6	37·4	78
23........	237	140·5	180	100	39·5	40·5	80
24........	251	139·55	189	104	49·45	35·55	85
25........	193	143·09	202	102	58·91	41·09	100
26........	176	143·09	180	104	36·91	39·09	76
27........	175	142·87	215	111	72·13	31·87	104
28........	161	144·18	187	108	42·82	36·18	79
29........	108	145·33	190	99	44·67	46·33	91
30........	184	144·1	210	105	65·9	39·1	105
	2,804	—	—	—	—	—	—

TABLE F.—*Weights*, 1877–78.

Age.	Number Weighed.	Average.	Maximum.	Minimum.	Maximum over Average.	Minimum under Average.	Maximum over Minimum.
		Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.
18........	433	125·09	164	89	38·91	36·09	75·0
19.	365	132·69	164	101	31·31	31·69	63·0
20........	365	136·57	172	100	35·43	36·57	72·0
21........	369	138·81	173	109	34·19	29·81	64·0
22........	406	141·65	199	106	57·35	35·65	93·0
23........	320	142·52	196	100	53·48	42·52	96·0
24........	307	140·92	178	108	37·08	32·92	70·0
25........	235	142·69	190	110	47·31	32·69	80·0
26........	235	143·01	218	101	74·99	42·01	117·0
27........	216	144·83	200	109	55·17	35·83	91·0
28........	241	143·96	186	110	42·04	33·96	76·0
29........	135	147·5	184	121	36·5	26·5	63·0
30........	192	143·94	210	98	66·06	45·94	112·0
	3,819	—	—	—	—	—	—

The material used for Tables A and D were laid before the Society in 1862; but rather less fully than at present. Finding it distinctly desirable to base the average not upon an uniform number, but upon the largest number obtainable, at each age, I have again been through the figures for the period 1857-58, and have increased the numbers as far as practicable. This I find makes no material change in the results; but it excludes a doubt which might otherwise attend a comparison of the table of 1857-58 with those of the later periods.

The number of men of the specified ages measured and weighed in 1857-58 was 2,148; in 1867-68 it was 2,804; and in 1877-78 it was 3,819. The increase in the two later periods was due, in some degree, to a change of practice. In the first period, only those were measured who were committed for one month or more; afterwards, all who were committed were measured. The total number of measurements before us is therefore 8,871.

It will be observed that I have deduced from the figures before me only the *average* heights and weights, and have not attempted to deduce the *means*. Undoubtedly the *mean* heights and weights have, as a rule, greater significance; but my main purpose was to mark the period of *maturity;* and this purpose was attained more simply, and obviously, and with sufficient accuracy, as it seemed to me, by taking only the averages. Further, these figures have been, it will be observed, from the first, somewhat vitiated, in my opinion, by the apparent errors in the distribution of the given heights and weights to the proper ages; and these errors would have rendered almost worthless the result of any attempt, by using the method of *means* to develop the more precise significance of the figures.

By way of making more distinctly apparent the contents of the tables, I have also framed for each table a diagram. A glance at these diagrams will at once show the general character of the results. This is nearly the same for each of the three periods. It will be seen that, up to the age of 22, there is, in each group, a rapid and tolerably steady increase year by year, in both height and weight. Then, from 22 to 29 there is a further general increase, but it takes place, in each of the three groups alike, by steps which are strongly suggestive of our not having the true figures before us. It will be observed that, in this respect, the anomalous character of the comparatively small number of figures obtained twenty years ago is distinctly repeated ten years later, and again recently.

It is clear that we have here some general disturbing cause, affecting each group alike.

In Table A the average heights at ages 23, 24, 25 and 26 are obviously deficient. Also in Table D, giving the corresponding weights, there is a corresponding deficiency. It is less marked, but it is still apparent. In Table B, giving the measurements of the years later, the heights at the ages 22, 23, 24, 26 and 28 are also obviously deficient; and in Table E, which gives the corresponding weights, there is a similar deficiency at the ages 22, 24, 26 and 27. And in Tables C and F, giving the heights and weights of 1877-78, we find the heights and weights attributed to the ages 23, 24, 25, 26 and 28 also similarly deficient.

Now, reverting to what I had occasion to say of the evidence on which the ages are recorded, it may be useful to mark the fluctuations in the numbers of prisoners registered at each age. Are these apparently consistent with a correct statement of the ages of the men measured? We know that, in the general population, the number of males living at 30 years of age is about 13 per cent. less than the number living at 18, and that the annual decrease between these ages is very gradual. But with this variation we have here to take into account another and much wider one. I mean the variation of the apparent tendency to crime at different ages. This is, in the present instance, by far the more important. Unfortunately, however, though we know that it exists, and that it is considerable, we cannot with any degree of confidence affirm more than that the number of males brought within the grasp of the criminal law bears the largest proportion to the number living, at, or about, the age of 26; and all that we know on the subject comes to us, as regards the ages of the criminal population, on evidence no stronger than that now before us.

Yet it is impossible, I think, to consider with any care the numbers of men measured at different ages, as shown in these tables for 1867-68, and also in those for 1877-78, without a strong temptation to infer that the numbers stated are incorrect; and are relatively deficient at 23 and 24, and still more so at 25, 26, and 27. We may thence fairly suspect, seeing how the ages must have been obtained, that some men, of the ages thus marked as deficient, have been placed elsewhere.

Are there, then, any numbers which may be said to be excessive? I think we may say that the number given as 30 years of age is probably thus excessive. It seems so in all the three groups. Also, it will be seen that the average height and weight given to that age is remarkably deficient; in fact, these are just what they would be made by placing under the age of 30 some of the men who should have appeared as three or four years younger.

Further, let us observe the figures as to the age of 29. In each of the three groups this also is strongly marked. The number of men stated to have been measured at this age is in each group the smallest.

Now it may perhaps safely be assumed, on the basis of common experience, that the age of 29 is unlikely to be given except by a person who both knew the truth and was disposed to state it. One who did not know, or who wished to deceive, or who only guessed, or was merely careless, would hardly stop short of 30. Hence, probably, those given as of this age were really so. And if we turn to the heights and weights which in the three several groups are associated with this age, we find them remarkably exceptional: as being singularly free from the apparent disturbances affecting all the others from the age of 23 upwards; and if for a moment, resorting to conjecture, we discard the heights and weights given from age 23 to 28, or use them freely as the elements of a progressive curve, advancing over unknown ground, but on a line suggested by the figures of the ages from 18 to 22, we find that such a curve would readily adjust itself to the average height and weight actually given for the age of 29.

Some consideration should perhaps be given to the probable source of the assumed greater intelligence of the few men set down as aged 29. It suggests their having come from a class higher than that which supplies the average criminal; and hence their having been better nurtured, and for that reason being somewhat taller and heavier.

One conclusion, however, at least seems clear. Though we may admit it to be probable, if not proved, that the men of the same locality and class reaching any particular age between 18 and 30, in any given year, will not have precisely the same average height or weight as the men of the same age in years preceding or subsequent, it is evident that no such variation, however considerable or however well established, could explain the figures before us. Each of the tables before us starts at a date just ten years removed from the starting point of the next, and runs through a series of thirteen years. The unexplained fluctuations occur at nearly the same points in each group, and they are therefore clearly not to be explained by any theory which would trace deficient height or weight to increased cost of food at the period of infancy.

Now let us turn, for a moment, to the figures which, on good authority, have been made public from other sources, touching the same subject, of late years.

In Mr. Charles Roberts's "Manual of Anthropometry," we have several tables of the average heights of males, taken from an early age up to 21 or 22 years of age, and one or two giving the ages separately, up to 24 years of age. But it would appear that either Mr. Roberts did not extend his observations to the later ages, with regard to each successive year, or that he found no notable difference to record after 24 or 25 years of age. And it is also to be borne in mind, in so far as his tables may be compared with those before us, that his tables, where they can be so compared with these, have reference to naval and military cadets, and medical and university students, and that mine refer exclusively to criminals; and such differences as we find may probably be traced to this difference of class.

We find that in 1857-58 the criminal class gave an average height at 21 years of age of 65·78 inches; in 1867-68 a height of 66·31 inches; and in 1877-78 a height of 65·4 inches. Correcting the latter for error in not including foot covering for part of the men measured, by adding one-third of an inch, we have (very nearly) a common average of 66 inches for the age of 21, in the criminal population. Mr. Roberts found among the cadets and students, at 21 years of age, an average height of 69·16 inches. This was taken without shoes. Adding only half an inch for this, we have a height of 69·66 inches, or about 3½ inches more, in the higher class, at 21 years of age.

But if we extend the comparison to 24 years of age (and I regret that Mr. Roberts's figures do not enable us to extend it further), we find the comparative figures, obtained in the same way, to be for the criminal class 66·20 inches, and for the others 69·28 inches, showing a difference in favour of the higher class, at the later age, of only 3 inches; and if we may infer from

Mr. Roberts's tables that he found no material increase of the average height in the class he measured after 24 years of age, then, as we do find such an increase here, we have some ground for conjecture that the growth of the criminal class, though less at the earlier ages, is partly compensated by a continuance of it to a later age. At the age of 29 we have a common average height, in the tables before us, of fully 67 inches, which is only about 2¼ inches less than the highest average recorded by Mr. Roberts for the higher class.

The tables of weights seem to confirm, generally, the inferences to be drawn from the tables of heights.

The maxima and the minima, in both sets of tables, are worthy of careful consideration; but this part of the subject lies somewhat apart, and time does not permit of my going into it.

The group of 1877-78, as to heights, calls for some special consideration, with reference to the fact that more than half of the men included in it were measured without their foot covering. In Table G I have shown the result of dividing the men, as nearly as I could, into the two groups thus distinguished; and the effect is also shown on the diagram of heights for this period, in the course of the two lines (red and blue) added to that diagram.

TABLE G.—*Heights,* 1877–78. *As taken partly with, and partly without, Foot Covering.*

Age.	Number measured with Foot Covering.	Average.	Number measured without Foot Covering.	Average.
		Inches.		Inches.
18	210	63·9	223	64·19
19	171	64·89	194	64·59
20	179	65·14	186	64·49
21	170	65·65	199	65·2
22	196	65·77	210	65·54
23	151	65·51	169	65·38
24	162	65·8	145	65·0
25	102	65·91	133	65·42
26	99	65·82	136	65 55
27	97	66·0	119	65·57
28	110	65·55	131	66·26
29	53	66·73	82	66·07
30	82	66·04	110	65·12
	1,782	—	2,037	—

In two instances, at 18 years of age, and again at 28, the average height of the men measured without foot covering comes out greater than that of the men measured, in the previous year, at the same ages, with foot covering. I suspect some error in the figures here; but I have not been able to discover it. If we take the aggregate, in each case, and compare the averages with each other, it appears that the 1,782 men measured with foot covering were taller, by one-third of an inch, than the 2,037 men measured without foot covering. The governor of the gaol estimates the actual difference at about three-quarters of an inch. This I should suppose to be excessive. On the other hand, I do not think it extremely improbable that the men of 1878 were, generally, somewhat shorter than those of 1877. And in the absence of precise information as to the fact, I should not be disposed to allow, on conjecture, more than two-thirds of an inch, for the excess of height of any large number of Englishmen measured in boots or shoes.

The most general, indeed the only common use of such inquiries as the present is, of course, a military one. Every inch in height seems to carry with it, on an average, something more than 2 lbs. in weight; and, together, they confer a distinct advantage in personal conflict.

I have therefore taken out from each group the men who, at each age, appear to have attained the height of five feet three inches, five feet six inches, and five feet eight inches, respectively. These are shown in Tables H, I, and K.

TABLE H.—*Number of Men, per Cent., who appear to have attained the height of Five Feet Three Inches, at each Age, in each Period.*

Age.	1857-58.	1867-68.	1877-78.
18	70·0	80·0	71·1
19	86·0	89·1	81·1
20	87·0	93·0	87·4
21	90·0	95·0	92·1
22	94·0	92·0	89·4
23	94·0	95·0	90·0
24	91·0	92·4	83·5
25	92·5	94·7	87·2
26	93·9	95·6	87·2
27	96·0	96·6	88·0
28	96·0	93·8	93·3
29	99·0	96·3	95·5
30	98·0	92·4	86·4

TABLE I.—*Number of Men, per Cent., who appear to have attained the Height of Five Feet Six Inches, at each Age, in each Period.*

Age.	1857-58.	1867-68.	1877-78.
18	27·0	33·7	17·5
19	40·0	34·1	31·7
20	39·0	52·3	32·8
21	43·0	55·5	42·0
22	49·0	51·0	46·5
23	55·5	59·9	40·0
24	54·5	56·5	45·3
25	44·0	66·8	43·8
26	55·0	60·0	45·5
27	60·0	72·0	48·1
28	60·0	62·1	48·9
29	68·0	78·7	53·3
30	51·0	70·6	48·9

TABLE K.—*Number of Men, per Cent., who appear to have attained the Height of Five Feet Eight Inches, at each Age, in each Period.*

Age.	1857-58.	1867-68.	1877-78.
18	6·0	8·6	3·6
19	12·0	11·2	8·7
20	9·5	26·1	7·6
21	16·0	30·4	12·4
22	23·0	23·4	19·2
23	28·0	23·2	15·0
24	24·3	23·1	14·66
25	29·0	37·3	22·5
26	24·6	33·5	15·7
27	26·0	32·9	23·1
28	29·0	36·5	12·4
29	36·0	46·3	27·4
30	28·0	37·0	20·8

The figures here present of course, the same general anomalies as those of the previous tables. But one feature in these records they bring out rather more clearly than before: that is the less height, at each age, of the men of 1877-78 as compared with the men of 1867-68, and even as compared with those of 1857-58. Part of this is at once accounted for by the fact, already noticed, that rather more than half of the men of 1877-78 were measured without foot covering. But this does not appear to justify a greater difference at most than two-thirds of an inch. And if we turn to Table B, giving the heights for 1867-68, and take the common average height due to the five years from 18 to 22 years of age, we get the figures 65·78, or five feet four inches and three-quarters. The corresponding figures for 1877-78 are 64·98 inches, or exactly four-fifths of an inch less. The same comparison for the ages 23 to 26, gives 66·49 inches in the earlier, and 65·53 inches in the later period—or nearly an inch of difference. And, in like manner, for the ages 27 to 30, we have the figures 66·94, followed by 65·85, showing more than an inch of deficiency in the later period. On the whole, it would seem that the men of 1877-78 were, on an average, at each age, at least half-an-inch shorter than the men of 1867-68. But this is not confirmed by a comparison of the tables of weights. We find that the men of the later period were, generally, the heavier.

But it seems now to be well understood among those best acquainted with the subject, that mere height and weight in a soldier, as in others working in the open air, is of less consequence than maturity. The late Dr. Parkes, in his "Manual of Practical "Hygiene" (fourth edition, pp. 493 and 494), drew the attention of our naval and military authorities to some important details in the final growth of the bones and muscles of the human body, whence it is to be inferred that the men of this and other European countries do not, in fact, arrive at physical maturity till they are about 30 years of age; and so do not, before that age, acquire their full capacity for exertion and endurance.

The figures now before us, imperfect as they are in other respects, certainly lead us directly to the same conclusion. But this widely differs from the popular notion. That has long and widely consecrated the age of 21, or thereabouts, as the age of maturity. The armies of the world, in accordance with the popular notion, have long been, and still are, composed mainly of men much under thirty years of age. Our own recruits are accepted at 18, and often, through deception, at less. Yet the marches, the privations, and the exposure of a campaign have always strewed the road-sides, and filled the hospitals, mainly with the younger men. Now it can hardly be doubted that, for all severe physical exertion or endurance, the conditions are the same; and if this be so, we have, for lack of sound statistics, long been practising, with most precious material, a most unsound economy.

I trust, therefore, that unsatisfactory as this paper is, in many respects, it may be of use: if only as attracting additional attention to a subject of some importance, and suggesting more careful collection, and more considerate use, of the order of facts on which it is founded.

The INDUSTRIAL RESOURCES *of* IRELAND.

By G. PHILLIPS BEVAN, ESQ., D.L., F.G.S.

[Read before the Statistical Society, 20th December, 1881.]

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OF all the misfortunes that can happen to a country, the greatest is that of not possessing a backbone of an industrial nature; and the misfortune is enhanced, when, to the lack of manufacturing resources are added the perennial excitement and unsettled conditions that so often attach to land questions. No country in the world has had so much written on the subject of her politics and agriculture, as has Ireland, and these subjects will, to all appearance, be fruitful of discussion to the end of time. The agricultural question appears to have taken such an extraordinary hold upon men's minds of late years, that the possibility of Ireland's becoming an industrial community seems rarely to have entered into consideration; indeed, it has come to be almost assumed that industry cannot flourish in Ireland, like it does in the sister countries of England and Scotland. It is often said, that nature has declared against Ireland, by denying her those supplies of iron and coal, without which, it is true, no people can attain a very decided industrial supremacy. To a certain extent this complaint is well founded, though not so far as to carry with it that complete disability, which seems to many inseparable from Irish affairs; and an attempt will be made in the following pages to briefly epitomise the present industrial resources, under a firm belief, that a systematic effort on the part of those who are qualified by means and knowledge to utilise these resources, will be productive of the greatest good. The diagnosis of the case, to use a medical phrase, will be, to cultivate and extend the industries that are, to implant new ones, and thus to gradually wean a population that is now starving on miserable holdings, without hope, confidence, or self-respect, to a sense of the immense superiority of the position that would be gained, as wage-earning, self-supporting citizens. That Ireland should ever become a *great* manufacturing land, is perhaps a physical impossibility, but that her existing industries might be developed and new ones introduced, is surely not an unreasonable expectation, or an unreasonable task to be undertaken by our statesmen, our capitalists, and our patriotic men generally. Few people, not even Irishmen themselves, are acquainted with the industrial resources of this part of the United Kingdom, and there are, it is to be hoped, many who would feel an interest in knowing what these resources are. The industrial section of the census, which it is now the habit of the English Government to take every decade, is, after its measure, an exceedingly good criterion of the manufacturing condition of the country, and, to judge by those tables, the industrial circumstances of Ireland do not seem to have been improving of late years. We find that the total population, which in 1861 was 5,798,967, was in 1871 but 5,412,377, a decline in round numbers of about three quarters of a million; while in 1881 it was 5,159,849, a further decrease of 252,528.

The classes under which the population is grouped in the censuses of 1861 and 1871 are six in number, viz., professional, domestic, commercial, agricultural, industrial, and indefinite or non-productive. Now, while the agricultural class had increased in the ten years 1861-71, from 988,929 to 1,062,008, the industrial class had, on the other hand, decreased from 667,172 to 538,135, a decrease of 129,037; and, still more remarkably and unsatisfactorily, the non-productive class had increased from 850,353 to 2,813,560. In what rank of life these persons of no specified occupation existed we are not informed, but under any circumstances, it cannot be looked upon as a hopeful sign, that a class which ought always to be in a minority in any country, should in this case head the list in such overpowering numbers. Nor is it altogether a sign of industrial prosperity, that the agricultural class should have increased by 73,079, though certainly the increase is not such a very large one; but, as a matter of fact, the tendency of a well-to-do agricultural district is to decline in population, because nearly all successful farming is now carried on under a labour-saving system, in consequence of the use of so much machinery. The increase, therefore, of the agricultural class, shows that more people have gone on to the land to support themselves, and that farming plant and property have not improved as they should have done.

The occupation of the people appears to be the first point in discussing the industrial resources of Ireland, so as to ascertain what are the existing industries, and how far they are retaining their position, as evinced by the number of persons employed. The classes with which we have to deal, according to the latest information available (the industrial census of 1881 not being yet finished), show the following proportions, according to the four last censuses:—

Class.	1841.	1851.	1861.	1871.
Agricultural	1,842,132	1,460,941	988,929	1,062,008
Industrial	1,127,629	823,974	667,172	538,135
Non-productive	Not given	Not given	850,353	2,813,560

The proportions of the sexes, taking the two censuses of 1861-71, were as follows:—

Class.	1861.		1871.		Increase or Decrease.	
	Males.	Females.	Males.	Females.	Males.	Females.
Agricultural	904,748	84,181	891,890	170,118	12,858 –	85,937 +
Industrial	325,323	341,849	288,894	249,241	36,429 –	92,608 –
Non-productive	421,954	428,399	1,220,873	1,592,687	798,919 +	1,164,288 +

In the agricultural class the increase was made up entirely of females; in the non-productive, both of males and females; while, in the industrial, there was a decline of both males and females. The next table will show us what were the proportions of the young, viz., those under 20 years:—

Class.	1861.		1871.		Increase or Decrease.	
	Males.	Females.	Males.	Females.	Males.	Females.
Agricultural	146,170	21,568	158,106	57,228	88.064 +	35,660 +
Industrial	61,650	96,429	52,955	70,076	8,695 –	22,353 –
Non-productive	102,314	50,402	966,238	965,788	863,924 +	813,386 +

In the agricultural class we have an increase of both males and females (under 20); in the industrial, a decline, very marked in the case of the females; and in the non-productive, an enormous increase of both males and females. Of course, a good proportion of these naturally come under the head of children, who could not be expected to be of much industrial advantage; but the difference between 1861 and 1871 is so astonishingly great, as to preclude our assigning it to a simple increase of population, even supposing that there had been such an increase, which we have seen was not the case.*

Let us now consider the orders into which these classes are divided. The agricultural class includes (*a*) persons working the land and engaged in growing grain, fruit, grasses, and other products; (*b*) persons engaged about animals. The latter, however, form but a small proportion of the whole (48,052), and may be dismissed without further remark. The industrial classes are divided as follows:—

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* It is not unlikely that a large proportion, at all events, of the increase for 1871, may be due to some difference in the classification of the two census periods.

(*a*) Persons engaged in art and mechanical productions, in which matters of various kinds are employed in combination; and we find the following results in comparing the two last censuses:—

Groups.	1861.	1871.	Increase or Decrease.
1. Workers in books	4,918	5,808	890 +
2. ,, musical instruments	128	156	28 +
3. ,, paints and pictures	287	369	82 +
4. ,, carving and figures	119	184	65 +
5. ,, tackle and games	164	153	11 −
6. ,, designs and medals	165	140	25 −
7. ,, watches and philosophical instruments	1,024	1,149	125 +
8. ,, surgical instruments	18	12	6 −
9. ,, arms	259	228	31 −
10. ,, machines and tools	3,402	5,013	1,611 +
11. ,, carriages	3,000	2,987	13 −
12. ,, harness	3,221	2,934	287 −
13. ,, ships	2,229	2,361	132 +
14. ,, houses and buildings	57,030	52,254	4,776 −
15. ,, furniture	3,903	3,020	883 −
16. ,, chemicals	938	664	274 −

(*b*) Persons working and dealing in textile fabrics and dress:—

1. Workers in wool and worsted	36,398	15,698	20,700 −
2. ,, silk	590	785	195 +
3. ,, cotton and flax	127,148	57,318	69,830 −
4. ,, mixed materials	79,746	87,733	7,987 +
5. ,, dress	217,000	180,802	36,198 −
6. ,, hemp and other fibres	2,092	1,470	622 −

(*c*) Persons working and dealing in food and drink:—

1. Workers in animal food	21,154	18,470	3,684 −
2. ,, vegetable food	20,537	18,522	2,015 −
3. ,, drinks and stimulants	11,265	15,974	4,709 +

(*d*) Persons working and dealing in animal substances:—

1. Workers in grease, bones, ivory	1,283	973	310 −
2. ,, skins and feathers	2,377	1,816	561 −
3. ,, hair	665	907	242 +

(*e*) Persons working and dealing in vegetable substances:—

Groups.	1861.	1871.	Increase or Decrease.
1. Workers in gums and resins	805	603	202 −
2. ,, wood	13,311	9,501	3,810 −
3. ,, bark	497	491	6 −
4. ,, cane or straw	1,313	2,013	700 +
5. ,, paper	3,334	2,853	481 −

(*f*) Persons working and dealing in minerals:—

1. Workers in mines	3,888	3,231	657 −
2. ,, coal	2,620	2,916	296 +
3. ,, stone and clay	7,209	8,645	1,436 +
4. ,, earthenware	878	908	30 +
5. ,, glass	286	368	82 +
6. ,, salt	93	75	18 −
7. ,, water	247	129	118 −
8. ,, gold and silver	563	539	24 −
9. ,, copper	281	121	160 −
10. ,, tin and quicksilver	2,032	2,063	31 +
11. ,, zinc	4	2	2 −
12. ,, lead and antimony	63	57	6 −
13. ,, brass	1,960	1,920	40 −
14. ,, iron and steel	26,728	23,530	3,178 −

Out of these 47 groups of occupations there were no less than 31, or about 70 per cent., in which there was a decline in the number of workers, showing a decrease of 129,037 in actual numbers. The chief changes were shown in the following occupations:—

Cotton and flax	a decrease of	69,830
Dress	,,	36,198
Wool and worsted	,,	20,700
Building	,,	4,776
Wood	,,	3,810
Animal food	,,	3,684
Iron and steel	,,	3,178
Vegetable food	,,	2,015
Mixed materials	an increase of	7,987
Drink	,,	4,709
Machinery and tools	,,	1,611
Stone and clay	,,	1,436

The most serious decline is in the textiles, which have been from their earliest establishment, the chief manufacturing support of Ireland. The non-productive class is divided as follows:—

	1861.	1871.	Increase or Decrease.
(A) *Labourers and Others* (Branch of Labour Undefined).			
1. General labourers	382,566	242,150	140,416 −
2. Others of indefinite occupation	48,046	50,832	2,886 +
(B) *Persons of Rank or Property*	12,262	15,594	3,332 +
(C) *Persons of no Specified Occupation.*			
1. Income from voluntary sources and rates	11,084	—	—
2. Prisoners and criminals	1,204	—	—
3. Vagrants	13,030	10,663	3,633 −
4. Children under 15, following no occupation	—	1,784,488	—
5. Wives, no occupation	—	429,853	—

These tables being incomplete in some respects, are only useful in showing a tendency towards the increase of indefinite occupations, and the great number of children returned as following no occupation. Assuming that one half are infants under 5 years, and therefore physically unable to work, there nevertheless appears to be an alarming number of older children growing up in idleness, for whom some light and remunerative industry might surely have been found. I do not propose to analyse the various individualities of labour, further than to notice, that the employment of children under 15 in Ireland is very disproportionate to the total number throughout the country. We find that the industrial classes numbered in 1871 only 27,253 children under 15, apportioned thus:—

Class.	Males.	Females.	Total.
X. Art and mechanical	1,774	150	1,924
XI. Textiles	5,972	15,590	21,562
XII. Food	1,239	122	1,361
XIII. Animal substances	78	74	152
XIV. Vegetable ,,	414	170	584
XV. Mineral ,,	1,595	75	1,670
Total	11,072	16,181	27,253

The total population in 1871 under 15 years, was 1,915,276, and that only 27,253 out of these were industrially employed, shows how deficient must be the opportunities. In the agricultural class, there were 53,385 children in employment, viz.: 44,352 males and 9,033 females, making a total of 80,638 employed children. Knocking off one half of the population under 15 as unavailable, there would be still 957,638 fit for work, and as we have accounted only for 80,638, there were 917,319 of whom we find no trace, as being in any way useful to the country.

The next point to be got at is, the number of industrial establishments (under Government inspection) of all kinds in Ireland. According to the Factory Returns of 1871, there were 3,129, distributed roughly as under:—

Textile and dress	1,749	employing	86,564	persons
Metal manufactories	193	,,	12,086	,,
Leather ,,	111	,,	1,055	,,
Chemical and glass	69	,,	2,335	,,
Food	85	,,	5,217	,,
Building industries	217	,,	2,708	,,
Paper manufactories	27	,,	1,450	,,
Miscellaneous	678	,,	12,475	,,
Total	3,129	,,	123,890	,,

Comparing the textile factories with the more recent Factory Returns of 1878, we find the following:—

Nature of Factory.	Number of Factories.		Number of Employed.	
	1871.	1878.	1871.	1878.
Cotton	14	6	4,157	1,620
Woollen	61	74	1,490	1,975
Worsted	3	2	75	47
Flax	154	144	55,039	56,342
Hemp	3	5	354	345
Jute	5	6	727	992
Hair	1	2	21	38
Silk	—	1	—	152
Lace	—	—	—	—
Hosiery	3	1	21	119
Total	244	241	61,884	61,630

These tables, emanating from the same source, and illustrating the same organisation, show that there has not only been no industrial increase during the seven years, but a distinct retrograde movement. As to the number of employés, however, a difficulty arises, in the disagreement of figures between the factory and the census departments. As we have seen, the latter places the industrial classes of Ireland for 1871 at 538,135, whereas the factory returns of the same date gives them at only 123,890. I presume that this great discrepancy arises from the fact, that the majority of Irish workers are occupied at home, or in establishments so small that they do not come under the cognisance of the Factory Act.

Having dealt with the numerical condition of the industrial classes, and the existing establishments in which they are employed, we will proceed to examine the main industries now in detail, commencing with coal and iron, upon the absence or presence of which the prosperity of every country so greatly depends. Ireland is, unfortunately, not rich in coal or iron, but it would be equally far from the truth to say, as many people do, that she is so deficient in them, as to be practically without them. The fact is, that there are both, in fair quantities and tolerable quality, and there seems to be no reason why they should not be utilised a great deal more than they are.

Coal exists, more or less, in fifteen counties, viz., Antrim, Carlow, Cavan, Clare, Cork, Fermanagh, Kerry, Kilkenny, Leitrim, Limerick, Queen's County, Roscommon, Sligo, Tipperary, and Tyrone; while iron ore is found in eight counties, viz., Antrim, Cavan, Fermanagh, Galway, Leitrim, Mayo, Tyrone, and Waterford. Geologically speaking, the coal basins are seven in number, though they are generally grouped into the four fields of Leinster, Munster, Connaught, and Ulster. The character of the two most northerly basins is entirely different from the others—the former being free-burning or bituminous, the latter anthracite or stone coal. The Leinster coal field extends over portions of Queen's County, Carlow, Kilkenny, and Tipperary, and contains, as shown in sections at Castle Comer, some seven beds of coal, having an aggregate thickness of 18 feet 4 inches. Professor Hull estimates (1880) that the Leinster field contains in the three first counties an unworked tonnage of 86,202,000, with an available tonnage of 77,580,000, while the Tipperary prolongation has 29,500,000 tons unworked, and 25 millions available. The Munster field, stretching into the counties of Clare, Limerick, Cork, and Kerry, is extensive in area, but the seams are thin and few in number, and therefore only of local importance, though coal is pretty largely worked between the rivers Blackwater and Kanturk. The beds at Duhallow (county Cork) are stated by Sir R. Kane to be of excellent anthracite, there being six beds, of which half are valuable, and known as the bulk, rock, and sweet veins. According to Hull, this field is estimated at 23 million tons, with 20 millions available for use. The Connaught (sometimes called the Arigna) field is the least known, and the most neglected of all. It extends into counties Fermanagh, Leitrim, Roscommon, and Sligo, and contains three beds of fair bituminous coal, respectively 9 inches, 2 feet 6 inches, and 3 feet in thickness. The estimated unworked coal is 12 million tons, and the amount available 10,800,00. The Ulster group possesses three different basins, that of Tyrone, Antrim or Ballycastle, and Monaghan (the latter very insignificant). The Tyrone basin, which is bituminous, ought to be, according to Professor Hull, the great storehouse of coal for the north of Ireland, but it is so unsystematically worked that it contains only eight collieries; while the whole produce of the Ulster field in 1877 was only 15,380 tons. Nevertheless, the estimated quantity is 36,950,000 tons, with 32,900,000 available. There are seven workable beds in the Tyrone basin, having a thickness of 30 feet, and, placed as it is, within easy reach of the manufacturing districts, ought to be of very considerable importance and value. The Antrim basin is at Ballycastle, and contains three beds of coal, respectively 3 feet, 3 feet, and 4 feet thick, while at Murlough Bay there are four beds. The late Sir Richard Griffith said of the Tyrone basin, that amongst all the sections of the English coal fields there is scarce any example of the same thickness of coal within the same short distance from the surface. The following tables will show us, not only how little coal has been taken away from the storehouse that exists, but also the fluctuating character of Irish coal mining, as evinced by the number of collieries at work:—

Year.	Total Irish, Yield in Tons.	Name of Field.	Total Estimate.	Available Tonnage.
1872	103,465	Leinster .... }	86,202,000	77,580,000
'73	103,435	Tipperary .... }	29,500,000	25,000,000
'74	139,213	Munster	23,000,000	20,000,000
'75	127,950	Connaught	12,000,000	10,800,000
'76	124,936	Ballycastle	18,000,000	16,000,000
'77	140,181	Tyrone	36,950,000	32,900,000
'78	121,975			
'79	129,000			
'80	133,719	Total	205,652,000	182,280,000

In 1846, according to Kane, the Leinster and Tipperary fields alone yielded, the one, 120,000 tons, the other, 50,000, while the Connaught basin produced 3,000, making 153,000 tons, without taking into account the Munster and Ulster fields. Most of this coal was sold at from 11*s.* 6*d.* to 12*s.* per ton. The next table (from the "Mining Statistics") shows the number of collieries at work:—

Year.	Leinster.	Munster.	Connaught.	Ulster.	Total.	Average Yield per Colliery (in tons).
1872	6	8	15	4	33	3,135
'73	—	—	—	—	34	3,042
'74	25	5	4	8	42	3,172
'75	35	5	4	9	53	2,414
'76	—	—	—	—	55	2,271
'77	16	5	6	12	39	3,592
'78	—	—	—	—	50	2,439
'79	26	5	6	10	47	3,500
'80	27	5	7	10	49	2,728

From these tables it appears that there are over 182 million tons of coal available for use in the Irish fields, while the annual output has not for several years past exceeded the contemptible figure of 140,000 tons, with a general tendency to decrease. Mr. Dickinson, in whose district, as H.M. Inspector, the Irish collieries lie, states in one of his reports (1877) that the amount of coal got per person is 113 tons during the year, which is only a little more than one-third of the get in Lancashire, where the average is 301 tons per head. Of course, the Lancashire collieries are larger, the seams thicker, and the condition of the pits more favourable to work; but even taking these things into consideration, the disproportion is sadly great. As regards the quality of the coals, we have Sir R. Kane's authority for the statement, after analysing the various beds, that the majority of them are excellent, and applicable to every kind of industry. Whatever may be the cause, therefore, of the exceedingly small yield, whether arising from careless working, indifferent machinery, exorbitant royalties, or what not, it is clear that a great opportunity for improvement is to be found in this one section of Irish industry. That the supply is not in any way equal to the demand is proved by the amount of coal imports for the last ten years:—

Year.	Import in Tons.
1870	2,568,271
'71	2,593,197
'72	2,611,911
'73	2,562,619
'74	2,213,545
'75	2,591,185
'76	2,713,234
'77	2,732,293
'78	2,855,258
'79	2,184,940
'80	2,863,163

Of this amount (for 1880) Belfast manufactures alone absorbed 882,182 tons, a large proportion of which might well have been supplied by the neighbouring fields of Tyrone and Antrim, instead of from Scotland or Wales. Irrespective of the stationary character of the coal mining industry, the imports themselves bear testimony to the somewhat retrograde aspect of Irish consumption and industry generally.

The next point that demands our attention is that of Iron Ore, which is so frequently, though not necessarily, associated with the industry of coal mining. Ireland is certainly less rich, comparatively speaking, in iron, than in other ores, but there is no foundation for the oft-repeated assertion, that she has no iron, and therefore cannot have an iron trade. The raising of iron ore is confined to five counties, viz., Antrim, Derry, Down, Donegal, and Wicklow, although nine-tenths of the quantity is obtained from the first-named, which is exceedingly productive. The Antrim mines are most prolific in aluminous and pisolitic iron ore, which therefore forms the bulk of the ore raised throughout Ireland, the remainder consisting of brown hæmatite. The next table shows the yield of both kinds during the last few years :—

Year.	Number of Mines.	Yield in Tons.
1872	24	176,550
'73	23	138,765
'74	23	120,900
'75	25	128,602
'76	23	116,066
'77	22	152,421
'78	24	156,834
'79	18	155,833
'80	21	239,325

From these figures we see a gradual decrease in the number of mines, although an encouraging increase (particularly noticeable in 1880) in the proportionate quantity of ore, showing either greater activity in the iron trade, or an improved method of working. But the ore-producing localities here represented do not by any means represent the total of Ireland. Dr. Boate, an industrial writer on Ireland two and a half centuries ago, tells us that there were "iron "mines in Munster, near the town of Tallow, by the Earl of Cork's "ironworks, and also in Leinster, in King's County, in a place called "Desart land, belonging to one Serjeant-major Pigott, which rock "is of so great a compass, that before this rebellion, it furnished "divers great iron works; also in Ulster, in the county of "Fermanagh; upon Lough Erne, in the county of Cavan, at a place "called Doubally, in a dry mountain; in the county of Tyrone, "not far from Lough Neagh; in King's County, hard by Mount "Mellick; in Queen's County, two miles from Montrath; in Con-"naught, in Tomound; in the county of Clare, 6 miles from "Limerick; in the county of Roscommon, by the side of Lough "Allen; and in the county of Leitrim, on the east side of the said "lough." Now, for this goodly list of iron-producing places to have been known to a writer two hundred and fifty years ago, when information was difficult to obtain, and knowledge on these subjects very scanty, shows that the iron trade in Ireland was in those days a recognised fact; and we know from other sources that the country was sprinkled with ironworks; charcoal-burning, it is true, and not on a very large scale perhaps, but remarkable for producing the finest quality, equal to that imported from Sweden, and sufficient to justify its being considered as a national industry. To come down to more recent times, Sir R. Kane speaks (1846) of excellent specular iron ore (such as that so largely imported from Elba) existing in county Cork, in the Cosheen mines at Skibbereen, and in the Glandore mines at Carberry; and he states that it was not worked, simply for the reason that it was associated with the more valuable ores of copper and manganese, and therefore not worth the trouble. The same author gives a graphic description of the clay-iron stones found in the iron mountain of Sleive-a-Nierin, on the eastern shores of Lough Allen, in what has been already referred to as the Connaught coal field; and he speaks of the vast quantities of ironstone nodules to be had for the picking up, and which have been estimated as sufficient to feed two furnaces for two hundred and fifty years. A more recent authority, Professor Hull, says, "that the claystones of the Leitrim coal field are "intrinsically valuable from their quantity and their richness in "iron, and it is to be hoped that they will some day be turned "to better account." From analysis, it is known that these ironstones contain over 40 per cent. of metallic iron, and a comparative statement of the percentage of other well known ores gives the following:—

Name of Ore.	Natural.	Roasted.
		Per cnt. of metallic iron.
Richest Leitrim	42·3	61·4
Poorest ,,	37·7	53·2
Average ,,	40·0	58·2
Common Staffordshire	28·0	40·4
Richest ,,	40·5	60·0
Ordinary Welsh	31·4	44·7
Richest ,,	42·1	60·0

Sir R. Kane states too that the ironstone of the Kilkenny coal field is scarcely inferior to that of Leitrim, while the ores of Lough Allen attain a richness in iron only equalled by the celebrated black-band ironstone of Glasgow. There is not the slightest doubt therefore but that Ireland, so far from having no iron, is fairly rich in that metal; and the question naturally occurs, why is it not worked more than it is? Why are the Leitrim deposits left neglected, when there is a fortune in them, if properly utilised, and an industry for the whole country side? The answers are two. In the first place the chief drawback to utilising the Connaught ores is the want of communication. Lough Allen, in the immediate neighbourhood of which these ores are situated, is isolated, not merely from railways, but almost from ordinary roads; and it would be difficult to find a more dreary or more sparsely inhabited district than this. But there is a waterway from Lough Allen, down the Shannon, to Carrick-on-Shannon, which is a station on the Midland Great Western Railway, and it would be an easy matter, with a cheap method of transport, to utilise this branch of wealth. The clay band ironstones of the Leinster field are ready to hand, without any difficulties of carriage, while the hematites and aluminous ores of Antrim are sufficiently near to the coast to be exported to Ayrshire or Cumberland, where they are held in high estimation for mixing with other ores. In the old days of iron smelting, it was considered necessary for the profitable smelting of ore, that the ore, the coal, and the limestone flux should all be at hand together; but of recent years this has been entirely revolutionised, and it is now considered the most economical plan to smelt the ores where they are found, and to bring the coal and limestone to them. If, therefore, the Antrim ores are good enough to take to Scotland, they are good enough to be smelted in Antrim, where too the proximity of the Ulster coal field is in their favour. The Connaught ores are actually intermixed with the coal beds, and the want here is simply some ready means of transport to convey the pig iron at a moderate rate to its market. The second answer is, that pig iron has actually been made within the present century at this very spot; and it was clearly proved by the careful investigations of Mr. Grieve, in 1800; Mr. (afterwards Sir John) Guest, of the Dowlais Iron Works, in 1804; Mr. (afterwards Sir Richard) Griffith, in 1818; and Mr. Twigg, in 1827, that iron of excellent quality could be made here at a cost not exceeding that of the best Welsh or Staffordshire. The misfortune was, that an undertaking, called the Arigna Iron Company (from the name of the spot), was set on foot in the year 1803, and had a most disastrous career, not from any inherent difficulty of making iron at a profit, but from sheer financial mismanagement. The thing was blundered from beginning to end, the shareholders were ruined, and the prestige of what under competent direction would have become a flourishing Irish iron trade, was irretrievably damaged; even to this day the Arigna Iron Company is quoted as the reason why iron cannot be made profitably in Ireland, though the true cause of the breakdown is quite ignored. It may be argued by some, that the iron age is past, and is being supplemented by steel, and that many iron works of good repute in England and Scotland have been obliged to adapt themselves to steel making; but when we see what is being done in the Cleveland district to utilise the low grade ores for steel making by the dephosphorising process, there is no reason why the same process should not be brought into play in Antrim, Connaught, and Leinster, as well as in North Yorkshire.

We are told that in the year 1632 the Earl of Cork had in that county, in his several bloomeries or forges, 1,000 tons of bar iron, besides 100 tons drawn out and fagotted into rods at a slitting mill, and about 2,000 tons of pig iron. The price of iron at that time was 18*l*. per ton (it is to be presumed, for manufactured iron). In 1629, Luke Brady, of Thomgreny, in the county of Cork, and others, obtained a patent for making iron ordnance shot and cross-bow shot. Iron works were carried on too in the county of Sligo, until all the woods in the neighbourhood were consumed, after which they were transferred by the owner to Foxford, in county Roscommon, where he had others. The cause of the extinction of the trade in those days was the lack of fuel, which of course was charcoal, and it was the same reason that partly killed the brisk iron trade in Kent and Sussex; but the Irish iron ore was there and *is* there, and it becomes more or less a question of transport. Even granting that the iron trade of Ireland could not compete in the markets of the world with English or American iron, there is a large and unoccupied field in the home trade; for it is not only in raw iron making that Ireland is deficient, but also in the manufactured article. Subjoined is a table of the number of establishments in Ireland in which iron is manufactured or manipulated, in the shape of machinery or hardware:—

County.	Nature of Factory or Shop.	Number of Works.	Persons Employed.
Antrim	Foundries	19	2,111
	Machine shops	16	562
	Nails and rivets	1	2
		36	2,675
Armagh	Foundries	4	206
		4	206
Cavan	Nails and rivets	1	2
		1	2
Clare	—	—	—
Cork	Foundries	2	103
	Machine shops	7	460
	Iron shipbuilding	2	371
	Nails and rivets	4	15
	Gun making	2	21
		17	970
Donegal	—	—	—
Down	Foundries	2	299
	Machine shops	5	123
	Iron shipbuilding	1	2,085
		8	2,507
Dublin	Foundries	25	1,508
	Machine shops	13	1,570
	Iron shipbuilding	1	625
		39	3,703
Fermanagh	Machine shops	1	38
	Gun making	1	2
		2	40
Galway	Foundries	1	17
		1	17

County.	Nature of Factory or Shop.	Number of Works.		Persons Employed.	
Kerry	—	—		—	
Kildare	—	—		—	
Kilkenny	—	—		—	
King's County	—	—		—	
Limerick	Foundries	1		45	
	Machine shops	1		113	
			2		158
Londonderry	Foundries	3		151	
	Nails and rivets	2		5	
			5		156
Louth	Foundries	1		21	
	Machine shops	4		411	
			5		462
Meath	—	—		—	
Monaghan	Nails and rivets	2		—	
			2		
Queen's County	Foundries	1		19	
			1		19
Sligo	Cutlery	1		3	
			1		3
Tipperary	Nails and rivets	1		8	
			1		8
Tyrone	Foundries	1		33	
	Nails and rivets	1		5	
			2		38
Waterford	Foundries	2		66	
	Machine shops	1		32	
	Iron shipbuilding	1		72	
			4		170
Westmeath	—	—		—	
Wexford	Foundries	2		29	
	Machine shops	3		95	
			5		124
Wicklow	—	—		—	

The total therefore of the iron and collateral trades in Ireland is limited to :—

Foundries	64	employing	4,608	hands
Machinery	50	,,	3,396	,,
Iron shipbuilding	5	,,	3,153	,,
Nails and rivets	12	,,	44	,,
Gun making	3	,,	23	,,
Cutlery	1	,,	3	,,
Total	135		11,227	

about equal to a good sized manufacturing town in England.

Turning to other metals, for the mining of which Ireland has attained a greater celebrity than for coal and iron, we nevertheless note the same disheartening symptoms of decrease. The tables for the last half dozen years of the Copper trade show a decline, both in quantities and values :—

Year.	Number of Mines.	Copper Ore.	Value.	Copper.	Value.
		Tons.	£	Tons.	£
1875	8	7,019	42,020	600	54,000
'76	6	6,186	32,342	452	37,645
'77	6	4,949	19,664	281	21,300
'78	6	1,821	9,662	140	9,600
'79	5	2,096	13,062	179	11,505
'80	5	1,502	8,523	191	13,226

There are three principal copper mining districts in Ireland, viz., in counties Wicklow, Waterford, and Cork; and according to the "Mining Statistics," there are in the first named district three mines, Ballygahan, Cronebane, and Tigroney, which produced in 1880 the magnificent aggregate of 52 tons of copper in ore and precipitate, of the total value of 763*l.* Now in 1836 there were five copper mines in this Ovoca (Wicklow) district, yielding 11,813 tons of ore, value 55,818*l.*; the Cronebane and Tigroney mines alone, which in 1880 produced only 416*l.* worth, yielding 23,497*l.* in 1836. In 1840 the Wicklow mines declined considerably, as the following brief table will show:—

Year.	Tons of Copper Ore.	Value.		
		£	*s.*	*d.*
1836................	11,813	55,812	12	–
'40................	6,647	21,442	3	6
'43................	3,227	12,917	19	–

But, on the other hand, the value of the mines as industrial undertakings, had increased, owing to the development of the iron pyrites trade, as a source of obtaining sulphur. In Wicklow the copper ore is largely associated with iron pyrites, which was obliged to be raised with it, and thus enhance the cost; but as soon as an outlet was found for the latter, the extra cost disappeared. According to Sir R. Kane, there were employed at the Ballymurtagh mine in 1843 about 700 persons, to whom 12,000*l.* was annually paid in wages. From a report of this mine, issued in 1864, and sent to me by the courtesy of the Secretary of the Wicklow Mining Company, it appears that the results of the operations in these thirty years were as follows:—

	Tons.
Copper ore	94,853
Copper pyrites	63,157
Iron pyrites	499,624

while the amount of profits in the shape of dividends had been over a quarter of a million sterling. But this happy state of things is a byegone, unfortunately, and the mine reports, especially of late years, speak of progressive decline. In fact, the Ballymurtagh mine is idle, and were not the proprietors sufficiently alive to the requirements of the day, by establishing chemical manure and sulphuric acid works at their port of Arklow, this fine industrial property would be a blank. The Waterford group, represented at present by the Knockmahon mine, with a yield, in 1879, of 42 tons, consisted some forty years ago of four mines, with the following results:—

Year.	Tons of Copper Ore.	Value.
		£
1836	3,588	33,166
'40	7,875	63,087
'43	9,101	62,956

and during the last named year 1,200 persons were employed, whose wages were at the rate of 2,500*l.* per month. The most productive at the present time of the Irish copper mines are situated in the county of Cork, in the promontory of Berehaven, where the Mountain mine yielded in 1880 about 1,470 tons, valued at 7,690*l.*, and in the previous year nearly 2,000 tons, valued at 11,200*l.*; but this is a bagatelle to the yield of former years, viz., in:—

Year.	Tons of Copper Ore.	Value.
		£
1836	6,418	74,879
'40	4,808	40,981
'43	4,446	36,348

The history of all copper mines, wherever they may be, is more or less one of fluctuations, but at the same time it is somewhat singular that every one of the Irish mines, not belonging to one locality only, but in different parts of the kingdom, should have decreased so systematically. Sir R. Kane mentions the existence of successful copper workings at Holy Hill near Bantry; Ardtully near Kenmare; and Mucross, Killarney, where, by the way, a considerable quantity of very valuable cobalt ore was extracted, and flung away as rubbish. Again, copper, iron pyrites, and lead ore have been partially worked at Silver mines in Tipperary; at Lackamore, in the valley of the Newport river, Mayo; at Rush, county Dublin; and near Dungannon in Tyrone.

Lead mining is in rather a more prosperous condition, though it by no means keeps pace with what has been done:—

Year.	Number of Mines.	Tons of Lead Ore.	Ounces of Silver.	Value of Ore.
				£
1872	5	962	1,040	—
'74	4	1,752	6,555	21,059
'75	1	1,850	6,935	20,354
'79	2	1,272	4,000	8,832
'80	3	1,244	3,360	13,495

The chief Irish lead mines are at Luganure, county Wicklow, where, at the present date, I am informed by the Secretary of the Mining Company of Ireland, from 1,200 to 1,500 tons of argentiferous galena are being raised. There is no doubt, however, but that large quantities of this metal exist, and have been occasionally worked, such as at Caraghan, county Clare; Caime, Wexford; Derrynoos near Armagh; Newtownards in county Down; Kildrum in Donegal; and also in counties Kilkenny and Longford.

There are other metals in Ireland, besides copper and lead, which if not so industrially important, are quite worth developing. Oxide of manganese, for instance, occurs at Howth (county Dublin) and at Glandore (Cork), where it is worked to a small extent. Antimony is found in county Clare, associated with lead, and, in the shape of grey sulphuret, at Clontibret (Armagh). Blende or zinc ore, used in the preparation of sulphate of zinc, is worked slightly at Conorree (Wicklow), while Sir R. Kane mentions that nickel, chrome, arsenic, and bismuth are all known to exist, but that nobody has thought it worth their while to experiment upon them. Before quitting the subject of mineral resources, I should like to add a couple of short tables—one, of the industrial population employed in this group—the other, of the value of this class of property. The number of miners (including all kinds) were:—

In 1841 census	3,076	
,, '51 ,,	5,065	
,, '61 ,,	3,855	(of which 671 were coal)
,, '71 ,,	3,082	
,, '77 Mine Inspector's Report	3,293	

Of whom 1,248 were coal miners. This table shows at least the stationary character of the industry within the last forty years. The next table, of the gross amount of annual value of property and profits, assessed to the income tax upon mines and ironworks in Ireland, points to the same conclusion:—

Year.	Mines.	Ironworks.
	£	£
1864	55,949	404
'65	85,983	—
'66	87,150	—
'67	70,677	161
'68	80,389	—
'69	81,268	—
'70	78,313	—
'71	51,551	—
'72	32,364	—
'73	43,683	—
'74	29,771	—
'75	31,544	625
'76	27,562	—
'77	19,130	—
'78	23 209	250

Let us now pass on to another subject, scarcely less important than the last, viz., the clays and rocks, the economical value of which cannot be doubted. There appears to be no reason why Pottery on a large scale should not be manufactured in Ireland, seeing that all the materials exist there, and in tolerable proximity to each other, which, after all, is more than Staffordshire can say. It is stated by Kane that the decomposed granite of the Mourne Mountains, county Down, is in every way similar to the china clay stone of Cornwall, and also that kaolin of the finest quality is obtainable at Baltinglass, Wicklow. Porcelain clay exists in Carlow, though not absolutely free from iron, while clays, suitable for the manufacture of the coarser kinds of ware, are very plentiful. Between Cahir and Clonmel is an extensive area of pipeclay, quantities of which have been exported to England, though no use of it was made at home, and the same deposit occurs on the shores of Lough Ree, and at Kellymount, county Roscommon. At this latter place indeed there was formerly a very prosperous tobacco-pipe manufactory, turning out some thousand gross per week. The fireclays of the different coal basins are of excellent quality, while those of the Tyrone field contain exactly the same quantity of silica as the Stourbridge clays, though unfortunately they are somewhat marred by peroxide of iron, which would colour the ware. What *can* be done in this direction, has been most satisfactorily demonstrated in the case of the Belleek pottery, produced at that place in the county of Fermanagh. At the recent Melbourne Exhibition, the display of Belleek ware was pronounced by the Japanese commissioner (no mean authority) to be equal to anything of the kind that had come under his notice during his industrial tour throughout Europe. The base of the ware is pure felspar, and china clay found in the neighbourhood, and the beauty and grace of the manufactured articles are too well known to need any praise. The pity is, that with such unqualified success, the industry does not rapidly spread. Since the establishment of the Belleek pottery, the whole appearance of the neighbourhood has been altered, the people content and well clothed, and in the receipt of regular and good wages. A remark made by a neighbouring landowner, when on a visit to Belleek, was quoted to me: "How is "it that there are no half-naked wretches making mud pies in "Belleek as there are in the village of Ballinafad?" Mr. Bloomfield, of Castle Caldwell, a landowner who appears to have taken very great pains in developing the material interests of his property, has succeeded in establishing a manufactory of cement, with the double advantage of adding to the industrial resources of the neighbourhood, while producing an article which is of exceeding value, from its property of making dwellings impervious to damp at a very cheap rate; and those who know the climate of Ireland, and the miserable condition of the labourers' huts, will be able to appreciate the substantial gain that such an industry offers. As a matter of fact, there are several localities in Ireland which furnish excellent clays suitable for porcelain, or for the commoner kinds of ware, as also of fine sand, well adapted to the glass trade. The fire clay of the Kilkenny coal beds is identical with the celebrated fire clay of Stourbridge, and similar clays are found at Howth, containing 67 per cent. of silica, from which at one time crucibles were made with great success. There is no doubt, that if all these deposits were carefully examined, there would be found materials for many important industries.

The same may be said of the Building Stones of Ireland, many of which are equal to the best in Great Britain. Professor Hull, of the Irish Geological Survey, than whom no better authority exists, states that the Donegal red granite is equal in beauty to that of Peterhead, and capable of receiving a high polish; while those of Wicklow and Down are of a greyish tint, and are extensively quarried at Kingstown, Newry, and Castlewellan. There is scarcely any country in the world which, for its size, possesses greater variety of building marbles of all colours. At Kilkenny and in the quarries of Galway there is black marble to any extent, while the latter county yields also white marble, absolutely pure in tint, and, as far as quality goes, of the strongest kind of limestone. Red, yellow, and blue marbles are found in the county of Armagh, purple and white, and blue and white at Churchtown (county Cork), ash-coloured, grey, and dove-coloured at Carrigaline and Castlemary (county Cork); variegated near Tralee; sienna near Shannon Harbour, on the Galway side; fine grey in King's County and Tipperary; striped white and red at Killarney; and brownishred at Ballymahon (county Longford). Then again in Galway and Mayo are quarries of serpentine of the most valuable kind. A recent letter in the "Times" calls attention to the fact, that while the red, green, and black marbles of Ireland are largely used, green Irish porphyry is scarcely known; and also that some of the green marbles are of the most lovely colour and quality imaginable, looking like dark green seaweed beneath the clear sea. And yet even Irishmen are oblivious of the rock treasures that lie at their very doors—as witness, for instance, the splendid mansion of Castle Coole, near Enniskillen, built of freestone brought over from Bath at a fabulous price, though marble of the first quality was to be had for nothing! The slates from Killaloe and Valentia Island are well known and appreciated, as are also those of the Clanwilliam Slate Company at Wooden Bridge, county Wicklow; but there are many other places in which slates are known to exist, even though they are not of such first-rate quality as to compete with North Wales. Sir R. Kane mentions such at Clonakilty and the Old Head of Kinsale; at Westport, in Mayo; and at Ross, in Waterford. And yet, according to Dr. Neilson Hancock, writing in 1864, the streets of Dublin are paved with Welsh paving stones, and the houses slated with Welsh slates, which, it may be naturally assumed, were preferred because they were better. Judging, however, from the character which the quality of the Irish slates have attained in the market, it seems more likely that the real stumbling block is that of expense, caused by one of Ireland's chief difficulties, viz., the lack of communication and means of transport.

Time will not permit me to enlarge any further on this branch of Irish resources, as I have to deal with many others, and particularly the textiles. The FLAX and LINEN trades first of all claim our attention, and the fact of their great success and their world-wide reputation, sufficiently disposes of the accusation so often brought against the Irish people, that they have not the capabilities for becoming a manufacturing race. The statistics of the linen trade, although bearing the stamp of a well-rooted and important natural industry, have some points about them which are not altogether so satisfactory as might be, and particularly at the very outset of the trade, viz., the growth of flax, which so nearly touches the prosperity of the farmer as well as the manufacturer:—

Table showing the Average of each Province under Flax since 1850.

Years.	Ulster.	Munster.	Leinster.	Connaught.	Total.
1850	85,065	2,094	1,801	2,080	91,040
'55	87,904	4,294	2,142	2,766	97,106
'60	123,424	1,666	1,289	2,216	128,595
'65	233,289	4,080	5,862	7,403	251,534
'66	245,356	4,170	7,262	6,719	263,507
'67	234,630	3,248	8,058	7,321	253,257
'68	192,222	2,807	5,168	6,249	206,446
'69	211,044	3,796	5,258	9,080	229,178
'70	180,416	4,188	4,239	6,050	194,893
'71	147,305	2,900	3,230	3,448	156,883
'72	114,792	2,295	2,022	2,894	122,003
'73	123,454	1,598	1,904	2,476	129,432
'74	102,789	1,284	1,113	1,700	106,886
'75	98,533	925	545	1,245	101,248
'76	128,993	1,068	1,136	1,681	132,878
'77	120,083	941	776	1,562	123,362
'78	108,864	965	807	1,172	111,808
'79	124,610	1,047	1,032	1,315	128,004
'80	152,996	1,142	2,157	1,239	157,534

It will be seen from this table, that the area on which flax is grown is, in the main, a decreasing one, although it is true that the tendency of the last two years is to increase. The point, however, which I wish to bring out, is not so much the stationary or decreasing character of the general yield, as the apparent failure to grow flax in Munster, Leinster, and Connaught. Ulster always has been, and always will be, the great flax-growing province, and it is as natural that the linen trade should be found in the centre of its supplies, as that an iron work is found near a coal field. If there had not been any considerable difference in the yields of the various provinces during the years 1850-80, one would have supposed that there was some barrier to the growth of flax in the nature of the soil; but as we observe that in Connaught, 9,080 acres were planted in 1869 against 1,239 in 1880, this cannot be so. The question, perhaps, is rather one that affects the agriculturist than the manufacturing interest, as the latter need not, and does not, depend altogether upon the home supply. The imports of flax, dressed or undressed, together with tow or codilla, from foreign sources into the United Kingdom, of which Ireland takes the lion's share, is as follows:—

	Tons.		Tons.
1871	129,353	1876	70,292
'72	101,048	'77	111,314
'73	109,771	'78	77,680
'74	118,704	'79	84,755
'75	88,697	'80	94,812

As the average yield of flax in Ireland for the last ten years is 20,432 tons, it is evident that there is great room for the agriculturist to supplement the demand for the trade. The Irish yield for 1880 was 24,508 tons, leaving the large quantity of 70,304 tons to be taken from foreign countries, which, it must not be forgotten, moreover, are hostile to us in their tariffs. The mistake has often been committed in Ireland of attempting to grow flax on a soil not suitable for the crop, and Mr. Charley, an eminent Belfast authority, mentions that he saw in county Roscommon a soil consisting of a thin clay, prepared for flax, with the result, that from 40 to 50 acres a produce was obtained, not exceeding what should have been obtained from 3 or 4 acres of good land. The reason why flax is so successful in county Down, where there were 31,456 acres in 1880, is because the soil consists of a light loam, admirably suited for flax. Geologically, the soils that compose the counties of Down, Antrim, Armagh, Monaghan, Londonderry, Tyrone, and Donegal, consist of lower Silurian, with the igneous rocks associated with them. One may reasonably inquire, therefore, why the same formations in other counties are not more experimented upon for flax growing. If the soils of Tyrone (and this is largely a question of geological chemistry) can grow 24,268 acres of flax, why should Wicklow and Wexford, which consist mainly of the same formation, grow only one acre between them? Of course there may be other reasons which may bar the flax growth, though I am not aware of any; but looking at the question as one largely of soil, it is not unreasonable to suppose that a minute examination of the rocks and soils of the country would greatly tend to the increase of the home flax, and what is more, to the extension of the linen trade from Ulster to Leinster, Munster, and Connaught. In Ulster there are forty-eight towns in the counties of Antrim, Armagh, Cavan, Donegal, Down, Fermanagh, Londonderry, Monaghan, and Tyrone, in which flax markets are regularly held, generally once a week, but in Leinster there is only one fortnightly market, at Longford; in Connaught weekly markets at Strokestown, Ballina, Castlebar, and Mohill; and in Munster a monthly market at Skibbereen and Ballyneen, in the county of Cork. That the limitation of flax growing and manipulation to Ulster is not due to any physical cause, is evident from a sentence which I have extracted from the "Instructions for the Culture and Preparation of Flax in Ireland," issued by the Flax Supply Association, to the secretary of which I am indebted for much valuable information: "Farmers beyond the "limit of Ulster are not sufficiently reliant on their own judgment "to guide them in the several operations of flax manipulation. "The growing and handling of a crop of flax only requires a little "more care and attention than should be bestowed on a well "cultivated crop of oats. The instructions, if carefully followed, "will make the farmer in a short time master of the art of flax "culture; but never, till the farmers in Connaught, Munster and "Leinster acquire a habit of independence, will they place themselves, as flax growers, in the same position that the Ulster "farmers enjoy. Another consideration which should inspire the "southern farmers with self-confidence, and stimulate them to grow "flax, is *the advantages possessed by them of soil and climate*, which "will enable them to produce crops larger in yield, and at a less "cost, than is done in the north of Ireland." Dr. Neilson Hancock's testimony is the same with regard to this subject, for he tells us that where experiments have been fairly tried, flax growing has been successful in all the counties of Connaught, in Clare and Kerry, and in certain parts of Cork, Limerick, Tipperary and Waterford; and he considers that those counties and baronies which have suffered by a decrease of wheat cultivation (particularly counties Clare and Galway), are just the ones which are most likely to prove favourable to the cultivation of flax. What has been done in the west and south entirely bears out this advice, the yield of stones of flax per acre being respectively, Munster 34·80, Leinster 29·90, Connaught 27·90, and Ulster 24·72. Let us now briefly review the statistics of the flax and linen manufacture, which, as everybody knows, is the staple and most prosperous industry in Ireland. From the Factory Returns of 1871 and 1878 we have the following results:—

Nature of Factory.	1871.				
	Ulster.	Leinster.	Munster.	Connaught.	Total.
Spinning	58	5	2	—	65
Weaving	44	3	1	—	48
,, and spinning	20	1	—	—	21
Unenumerated	20	—	—	—	20
Total	142	9	3	—	154
	1879.				
Spinning	45	1	2	—	48
Weaving	57	3	—	—	60
,, and spinning	21	—	—	—	21
Unenumerated	15	—	—	—	15
Total	138	4	2	—	144

The number of factories altogether have decreased, principally at the expense of the spinning factories, though those for weaving have increased.

The next table deals with the machinery:—

Year.	Total Spinning Spindles.	Total Doubling Spindles.	Total Power Looms.
1871	866,482	20,166	14,834
'79	808,695	18,048	20,638
'80	911,111	16,184	21,153
'81	879,835	16,194	21,177

Here the power looms show the increase, somewhat at the expense of the spinning establishments. In the preparatory machinery, by which the flax is got ready for spinning, we find a considerable and steady decrease, viz.:—

In	1869	there were	 1,542	scutching mills
,,	'70	,,	 1,511	,,
,,	'71	,,	 1,518	,,
,,	'72	,,	 1,499	,,
,,	'73	,,	 1,482	,,
,,	'74	,,	 1,427	,,
,,	'75	,,	 1,380	,,
,,	'76	,,	 1,259	,,
,,	'77	,,	 1,229	,,
,,	'78	,,	 1,212	,,
,,	'79	,,	 1,199	,,

In the interests of the trade it is perhaps as well that this decrease should take place, as the gross produce of the plant is lessened by mill scutching; while hand scutching invariably yields more fibre to the acre. Moreover, the reports of the factory inspectors seem to say that the scutching mills, being in out of the way country districts, are not very favourable either to cleanliness or morality. The increase in late years in the actual plant of the linen making shows steadily and satisfactorily:—

Year.	Spindles.	Power Looms.
1850	396,338	—
'59	—	3,633
'61	592,981	4,933
'64	—	8,187
'71	866,482	14,834
'74	880,559	19,331
'76	920,677	20,152
'78	918,182	20,638
'79	808,695	21,153
'80	911,111	21,153
'81	879,835	21,177

The numerical condition of the flax and linen workers, according to the factory returns, was:—

	Males.	Females.	Total.
1871.			
Spinning factories	9,257	16,549	25,806
Weaving ,,	1,990	6,154	8,144
Spinning and weaving factories	5,593	14,756	20,349
Unenumerated	499	241	740
Total	17,339	37,700	55,039
1879.			
Spinning factories	8,684	16,095	24,779
Weaving ,,	2,655	9,599	12,254
Spinning and weaving factories	5.407	13,261	18,668
Total	17,036	39 306	56,342

The census returns are discrepant, and, to say the least, show some extraordinary fluctuations, if the items are correct:—

Year.	Males.	Females.	Total.
1841	23,883	65,041	88,924
'51	69,964	92,956	162,920
'61	40,185	35,561	75,746
'71	27,167	22,674	49,841

The history of the linen trade, interesting as it is, scarcely comes within the scope of the present paper; but there is one brief episode in it which it is well to mention, as it bears on an important point in connection with industrial policy. At the early part of the present century there was a linen board, which received a Government grant of 20,000*l.* a year to encourage the extension of the manufacture throughout Ireland, and this board comprised the leading men in the kingdom, who had the prosperity of the trade at heart. This grant was given up in 1828, and the board ceased to exist. After that there was a flax society, which also had a grant; but that too was given up in its turn. I lately met with an account "of the sums paid by the linen board to encourage the "manufacture of sail cloth, duck, canvas, and drilling, spun by "machinery, being a bounty at the following rates:"—

Date.	Claimant.	Sailcloth.	Duck.	Drilling.	Place.	Bounty per Yard.	Amount.		
		Yards.	Yards.	Yards.		*d.*	£	*s.*	*d.*
1803	Julius Besnard	—	—	—	Co. Cork	—	518	7	9
'05	,,	71,328	—	—	,,	3	948	12	–
1807	P. & J. Besnard	—	12,570	—	,,	2	104	15	–
,,	E. Shanahan	4,421	—	—	,,	2	36	16	10
1808	Sir T. Fitzgerald	—	112,782	—	,,	2	939	17	–
,,	E. Shanahan	—	—	6,998	,,	1½	43	14	7
,,	Denis Connor	—	24,710	—	,,	2	205	19	8
,,	J. Besnard	—	—	4,853	,,	1½	30	6	7

Three points are here involved:—1. The system of encouraging a young trade in the shape of gratuity or bounty. 2. The fact that the trade was carried on successfully in Cork. 3. That a branch of the linen manufacture, viz., sail cloth, was in full play, and is one which might with good reason be encouraged in the present day.

The next textile to which we must direct our attention is that of Wool; and here we must briefly touch on its history, for it bears on the possible resuscitation of the trade. Ireland had in times gone by a great celebrity for her wools. Macpherson states that in 1360 stuffs called fays, made in Ireland, were in such request on the continent, that they were imitated by makers in Catalonia, who were in the habit of producing the finest woollen goods; they were esteemed also in Italy, and were worn by the ladies of Florence, where the luxury of dress was carried to the highest pitch. In 1410 Irish cloth must have been pretty common in England, as we find it charged, equally with worsted stuffs, canvas, and other articles, 2*s.* per hundred. In 1636, however, Lord Strafford, the then Lord Lieutenant, thought fit to discourage the woollen trade, although he used every endeavour to increase that of linen. For all that, the Irish woollen trade had become of such importance that even official frowns could not put it down; and the exports of wool, particularly from the south, increased to such an extent as to cause alarm and jealousy on the part of English makers. Cheaper living, we are told, and low wages attracted capitalists from England and the continent, so that the Irish woollen trade, especially friezes and common cloths, for which it had been long celebrated, defied competition, and threatened materially to control the demand for English products. In 1698 a kind of arrangement was made between the English and Irish Parliaments, by which the latter imposed duties on the export of their own woollens, with the view of buying off English opposition to the linen manufacture. It appears to have been a foolish and one-sided bargain, for the competition on the part of the English linen trade was certainly not checked, while the *coup-de-grace* was given to the woollen industry. The petition from the House of Commons to King William III ran as follows:—

"And we do most humbly implore Your Majesty's protection "and favour in this matter, and that you will make it your royal "care, and enjoin all those that you employ in Ireland to make it "their care and use their utmost diligence to hinder the exportation of wool from Ireland and for discouraging the woollen manufacture there;" to which the King answered with fatal brevity:— "Gentlemen, I will do all that lies in my power to discourage the "woollen manufacture in Ireland, and to promote the trade of "England." Acting upon this resolution, a law was passed that very session, commencing 25th March, 1699, laying 4*s.* additional duty on every 20*s.* value of broad cloth exported out of Ireland, and 2*s.* on every 20*s.* value of serge, baize, kerseys, stuffs, or any other sort of new drapery made of wool. Thus it was that a trade, for which naturally Ireland possessed all the facilities, was thwarted and almost destroyed, though there has been for some years past a tendency towards revival, which deserves the most careful attention at the hands of Irish landlords and capitalists.

The following is a table of the position of the woollen trade in 1871:—

County.	Number of Factories.	Total Spinning Spindles.	Total Doubling Spindles.	Total Power Looms.	Number of Persons.
Cavan	1	480	—	1	16
Clare	3	780	—	1	23
Cork	14	6,069	1,057	24	326
Down	2	2,450	300	33	102
Dublin	8	7,582	—	51	227
Fermanagh	1	670	—	—	30
Kildare	2	400	20	6	65
Kilkenny	5	1,366	—	—	76
King's County	1	120	—	—	27
Limerick	2	442	—	2	26
Meath	4	1,270	—	20	142
Queen's County	3	1,402	—	3	62
Tipperary	6	1,656	—	23	138
Waterford	3	2,260	150	45	106
Westmeath	2	180	—	17	80
Wexford	4	1,221	20	15	44
Total	61	28,348	1,547	241	1,490

Add to these the worsted factories:—

Dublin	2	—	—	10	61
Queen's County	1	760	252	—	14
Total	64	29,108	1,799	251	1,560

In 1878 the figures stood thus:—

Ulster	6	2,070	—	9	199
Leinster	29	19,659	2,582	207	949
Munster	35	18,256	2,360	192	817
Connaught	1	220	—	3	10
Total	71	40,105	4,942	411	1,975

Add to these the worsted factories:—

	2	288	1,344	—	47
Total	73	40,393	6,286	411	2,022

These figures, however, by no means represent the woollen trade of Ireland, and particularly as regards population, a considerable number of people being occupied at home in spinning yarn. The census of 1871 gives the following localities under the head of wool-stapling, spinning, cloth making, worsted, flannel and felt making:—

County or Town.	Number.	County or Town.	Number.
Carlow	112	Antrim	923
Drogheda	5	Armagh	194
Dublin city	90	Belfast	273
„ county	178	Carrickfergus	12
Kildare	138	Cavan	302
Kilkenny town	27	Donegal	2,190
„ county	91	Down	769
King's County	170	Fermanagh	230
Longford	166	Londonderry	344
Louth	90	Monaghan	154
Meath	496	Tyrone	578
Queen's County	199	Ulster total	5,969
Westmeath	243		
Wexford	350		
Wicklow	118		
Leinster total	2,373		
Clare	1,181		
Cork city	67	Galway town	61
„ county	1,655	„ county	3,366
Kerry	1,471	Leitrim	396
Limerick city	44	Mayo	1,489
„ county	601	Roscommon	387
Tipperary	598	Sligo	568
Waterford city	15		
„ county	304		
Munster total	5,936	Connaught total	6,267

We have thus a total of 20,545 engaged in the woollen trade in 1871, as against 15,675 in 1861, 45,137 in 1851, and 78,090 in 1841. Dr. Neilson Hancock spoke in 1865 of the revival of the woollen trade as a hopeful indication, and, "as it is based on the use of Ireland's "natural advantages in wool, water power, and turf (as fuel), the "trade admits of great extension, and may, with the rising price "of coal in England, very possibly enter into successful competition "with the English manufacturers of Irish wool." It is to be hoped that the intentions of Mr. Guinness, as recently stated, to erect a woollen factory at Dublin, will be followed up in other parts of the country, and that also the Marquis of Waterford's reported determination to close his frieze manufactory in that county, in consequence of the treatment that he has received from his tenants, will prove to be only temporary.

The COTTON trade never was much of a staple of Ireland, and is now in a less flourishing condition than ever it was. There is nothing indigenous, so to speak, in the circumstances of the manufacture, and indeed the dampness of the climate is somewhat unfavourable to it. The statistics of the two factory returns show a decided decrease:—

Year.	Number of Factories.	Number of Spindles.	Number of Power Looms.	Number of Hands.
1871	14	78,656	3,372	4,157
'78	6	76,796	2,686	1,620

The tendency to decrease appears also in the JUTE manufacture, which, one would have thought, had the same element of success as the linen trade, and yet we find that in 1871 there were five jute factories, and in 1879 only three. True, there were a few more hands employed, viz., 727 in 1871 and 812 in 1878, and it appears from a paper read before the Social Science Congress the other day at Dublin, that a jute factory, established at Galway in 1867, is exceedingly prosperous, and gives employment to between 400 and 500 hands. This development must be of recent date, as the only jute mill mentioned in Galway in the returns of 1878 employed 213 workpeople. Many of the subsidiary textile trades have such an unqualified success in Ireland, as regards character of work, that we can only regret that they are so exceedingly localised. The knit hosiery of Balbriggan, for instance, is known and appreciated all over England; the Irish poplins (a combination of silk and wool) are celebrated throughout the world; while the embroidery on muslin, so largely executed at Bangor and other towns in the district of Ards, county Down, is attaining as high a reputation as the guipure lace of Limerick. These manipulative home industries, as they may be called, appear to flourish in their way better than factory industries (always excepting those of linen); for in searching the pages of an Irish directory, it is disheartening to come across such statements as, "Ballinakill—woollen trade "decayed;" "Palmerston—flax, oil, lead, and iron trades all gone;" "Edenderry—woollen trade disappeared;" "Kilkenny—woollen "cloths and blankets, once very flourishing, but now extinct;" "Moate—linen and cotton, all gone;" "Stradbally—cotton trade "disappeared;" "Dublin—tape making, employing 6,000 hands, "no longer carried on." Migrations of trade have happened and do happen in every country, but in Ireland they do not appear to have been replaced to any extent by others.

All honour to those landowners, who have the foresight to cope with the difficulty, by establishing local industries, such as have been done by Mr. Bloomfield, in Fermanagh, and by Mr. Musgrave, at Carrick, a wild district in Donegal, where a glove knitting factory is already in active operation, with immediate prospects of a button and power loom hosiery factory to follow.

Of trades allied to the textiles, there are two of a nature which commend them to the notice of capitalists, viz., Paper and Ropes. The factory returns of 1871 give the following statistics of these trades:—

County.	Number of Paper Mills.	Number of Hands.	Number of Rope Yards.	Number of Hands.
Antrim	3	300	3	16
Armagh	1	27	2	13
Cork	3	63	7	38
Down	—	—	5	138
Dublin	13	643	4	164
Londonderry	—	—	3	48
Louth	—	—	1	26
Tyrone	—	—	3	22
Total	20	1,033	28	465

This is but a poor condition of two trades that require comparatively little capital, and can be so easily started anywhere. Mr. Richardson, an Irish gentleman, who read a paper on this subject recently at Dublin, called attention to the indigenous grass known as the Purple Melic (*Molinia cerulea*), which grows with great luxuriance on the edges of bogs that have been partially drained, and which is believed to be exceedingly well adapted to the manufacture of paper. There ought to be no difficulty in experimenting upon it, and if the anticipations are correct, the produce of the grass would go far to pay for the drainage of the bog. It is the more singular that paper-making is so little carried on, as Ireland is noted for the number of letterpress printers, and has long enjoyed a high reputation for the number and character of works that have been issued from her press. It appears that out of a total of 3,129 factories and workshops detailed in the returns of 1871, there were 229 letterpress printers and 39 bookbinding establishments, giving employment to 4,124 and 1,008 hands respectively.

An important industrial resource which appears to be greatly neglected in Ireland, is that of Timber. I do not wish to touch upon agricultural subjects, but can scarcely avoid doing so in this particular case, for it affects the prosperity of the country very nearly. Enormous areas of Irish hill and mountain might be planted with the greatest possible profit, making, to a certain degree, a reproduction of Ireland as it used to be. It was not in ancient days the comparatively treeless land that it now is, for not only do the Irish names repeatedly call attention to the local timbering, such as Altagh Derri, "the grove of oak wood;" Drunagh, "the field of black thorn," &c., but old writers bear testimony to the dense woods that formerly existed. Dr. Mc'Parlan, in his survey of Leitrim, says, "a hundred years ago, almost the whole "country was one continued, undivided forest, so that from Drumshanbo to Drumkeeran, a distance of 9 or 10 miles, one could travel "the whole way from tree to tree by branches." Mr. Sampson, in his "Survey of Derry," says that woods extended for 30 or 40 miles in different directions, and the same kind of testimony is given about scores of places in various parts of Ireland. Even the bogs contribute collateral evidence of the plenteousness of the timber, whereas, in the present day, whole counties are treeless, saving perhaps the ornamental wood in some gentleman's grounds, or a stray coppice here and there. The value of forestry, as an industrial resource, in Scotland, England and all continental countries, is too well understood to need any argument, and to Ireland, the advantages would be twofold: first, to the owners of land, who could scarcely utilise their mountainous possessions better than by systematically planting; secondly, to the people, by furnishing cheap and easily reached supplies of timber for the many purposes connected with wood work. Since the gradual substitution of iron for wood in shipbuilding, this outlet is necessarily diminished, but there must be still a large demand for small vessels and coasting craft, and there are hundreds of articles in daily use requiring both the timber and the manipulative skill. For instance, the hoops of butter firkins are, or were, made of hazel; the ash is in demand for making the firkins themselves; the beech and the maple are both valuable for making the beetling machines used in the linen trade. It is stated, that hoops for barrels, hayrakes, and even firewood are imported into Ireland from the continent and America, and if this is so, there would seem to be a wilful shutting of eyes to the openings for home industries. The following table of woods, coppices, and plantations, shows a tendency towards increasing the acreage of timber, though it must be confessed, that it is lamentably small in proportion to the 15.542,208 acres of Ireland:—

Year.	Number of Acres of Woods and Coppices.	Year.	Number of Acres of Woods and Coppices.
1867	323.420	1874	325,173
'68	321,314	'75	325,173
'69	320,461	'76	324,028
'70	320,853	'77	328,413
'71	324,990	'78	330,816
'72	325,173	'79	336,846
'73	325,173		

From the timber trade, it is an easy transition to that of SHIPBUILDING, which, at all events in a few places, seems to bring a gleam of light with it. Belfast appears to have secured a firm hold on the shipbuilding interest, a very large share having been obtained by Messrs. Harland and Wolf of that port in building the fleets of the White Star, Peninsular and Oriental, West Indian, Pacific and other lines. This firm have turned out for Ismay, Imrie, and Co. (the owners of the White Star line) 60,000 tons of shipping, to the money benefit to the town of Belfast of nearly 2½ millions sterling. Though, of course, Belfast possesses exceptional facilities for carrying on such an important industry, other Irish ports might do the same in a modified degree. As a matter of fact, shipbuilding does not appear to increase anywhere except at Belfast, as shown by the tables of vessels built during the five years 1875-79 :—

Port.	1875.			1876.		
	Sailing.	Steam.	Total Tonnage.	Sailing.	Steam.	Total Tonnage.
Ballina	—	—	—	—	—	—
Belfast	8	3	13,384	6	2	3,962
Coleraine	—	—	—	—	—	—
Cork	—	—	—	—	—	—
Drogheda	—	1	206	—	—	—
Dublin	6	—	420	3	—	142
Dundalk	1	—	207	1	—	127
Galway	—	—	—	—	—	—
Limerick	—	—	—	—	—	—
Londonderry	—	—	—	—	—	—
Newry	1	—	34	4	—	80
New Ross	—	—	—	—	—	—
Skibbereen	—	—	—	—	—	—
Sligo	—	—	—	—	—	—
Tralee	—	—	—	—	—	—
Waterford	1	—	17	—	—	—
Westport	—	—	—	—	—	—
Wexford	—	—	—	—	—	—
Youghal	—	—	—	—	—	—
Total	16	5	14,268	14	2	4,311

Port.	1877.			1878.			1879.		
	Sailing.	Steam.	Total Tonnage	Sailing.	Steam.	Total Tonnage	Sailing.	Steam.	Total Tonnage
Ballina	—	—	—	—	—	—	—	—	—
Belfast	8	1	8,505	5	2	8,556	4	8	11,432
Coleraine	—	—	—	—	—	—	—	—	—
Cork	1	—	200	1	—	42	—	—	—
Drogheda	—	—	—	1	—	49	—	—	—
Dublin	5	—	83	5	—	125	1	—	89
Dundalk	1	—	54	5	—	237	1	—	136
Galway	—	—	—	1	—	12	—	—	—
Limerick	—	—	—	—	—	—	—	—	—
Londonderry	—	—	—	—	—	—	—	—	—
Newry	—	—	—	—	—	—	1	—	57
New Ross	—	—	—	—	—	—	—	—	—
Skibbereen	—	—	—	—	—	—	—	—	—
Sligo	1	—	19	—	—	—	—	—	—
Tralee	1	—	35	—	—	—	—	—	—
Waterford	—	1	40	—	—	—	—	—	—
Westport	—	—	—	—	—	—	—	—	—
Wexford	—	—	—	—	—	—	1	—	93
Youghal	—	—	—	—	—	—	—	—	—
Total	17	2	8,936	18	2	9,021	8	8	11,807

The next table shows the number of shipping belonging to each port:—

Port.	Sailing.	Steam.	Total Tonnage.
Ballina	4	1	231
Belfast	355	31	72,664
Coleraine	1	2	292
Cork	223	62	43,341
Drogheda	40	6	5,970
Dublin	432	84	61,454
Dundalk	28	5	4,776
Galway	8	3	397
Limerick	26	4	3,218
Londonderry	29	4	10,863
Newry	56	9	3,341
New Ross	7	1	973
Skibbereen	23	1	731
Sligo	20	6	2,546
Tralee	9	1	306
Waterford	57	17	9,867
Westport	3	—	81
Wexford	80	3	6,365
Youghal	29	—	3,572
Total	1,430	240	231,098

The tonnage of Scotland, it may be mentioned, is 3,502 vessels, with 1,425,552 tonnage. Looking at the great saving of distance between such ports as Cork, Limerick, and Galway, and the United States, it is to be hoped that the day will still come when, notwithstanding the failure of the Galway Lever Line, regular trans-Atlantic communication will take place. As it is, such a large number of the sailing vessels are of wood, that the advisability of fostering the timber trade is a serious consideration.

The next class of industry to which we must refer, viz., that of Food products, is of the greatest importance, inasmuch as it deals with a national occupation, as well as with the food supplies for the teeming population of England. Next to the raising and exportation of cattle, the two industries most associated with Ireland are those of porter brewing and distilling. They are both necessary and valuable in their way, but it seems almost a regretable circumstance that distilling figures so largely in many towns, to the exclusion of industries of a more wholesome type. This is not the time or place to discuss the subject of temperance in Ireland, but we cannot ignore the fact, that whatever else fails in that country, the whisky trade seems to be always prosperous. Even in this direction, however, there has been a decrease of late years, as shown in the following table:—

Year.	Butts and Puncheons.	Hogsheads.	Casks.	Quarter Casks.	Octaves.	Cases.
1877	7,003	13,029	1,128	6,984	133	10,737
'78	6,721	10,709	941	6.144	164	7,993
'79	6,034	11,199	855	6,689	275	6,689
'80	5,277	6,388	1,197	6,116	174	15,200

The porter manufacture is one on which the prosperity of Dublin largely depends, and although there was a revival of the shipping trade in 1880, the same tendency to fall away is shown in the statistics of hogsheads:—

Brewer.	1877.	1878.	1879.	1880.
Guinness	207,489	215,908	199,323	216.837
Manders	34,614	36,022	30.861	32,381
Findlater	34.444	32,241	23,057	24,965
Watkins	25,321	26,305	19,731	21,391
Phœnix	13,439	15,226	12,951	14,639
Jameson	17,478	15,265	11,372	12,994
D'Arcy	10,724	10,119	9,151	9,133
City	9,183	9,464	8,448	8,619
Caffrey	—	6,031	5,039	5,916
Sweetman	6.553	7,011	5,809	5,076
Others	8,293	1,564	995	585
Total	367,538	375,156	326,737	352,536

The Irish butter trade is a kind of speciality in the southern counties; but notwithstanding its long experience and hold on the English market, it has considerably suffered of late years from the introduction of more delicate and carefully prepared brands of foreign makers. The question of dairy farming is one that has occupied a large share of public attention of late, and our northern neighbours of Norway, Sweden, and Denmark in particular, have made good use of their opportunities at the various agricultural shows, of ventilating their excellent systems and introducing their excellent butter into this country. This competition has happily not escaped the notice of the Cork Butter Exchange, and there is every reason to hope that the increased care in Irish butter making will soon result in increased production and consumption. The consumption throughout the United Kingdom, it must be remembered, far exceeds the home production, and our principal supplies are derived from abroad. I append a statement of the localities from which, and the quantities in which, butter is sent to this country:—

Country.	1875.	1876.	1877.	1878.	1879.
Sweden	27,939	29,412	38,545	39,138	51,076
Norway	379	584	124	10,853	17,779
Denmark	206,171	205,195	210,322	242,427	281,740
Germany	108,878	111,962	97,821	110,176	115,175
Holland	357,106	402,984	372,134	460,601	655,377
Belgium	79,950	65,309	58,200	80,073	63,032
France	567,560	622,488	606,762	555,272	438,725
United States	40,331	118,131	188,491	219,794	301,054
Canada	73,986	98,579	56,179	67,026	111,433
Total	1,462,300	1,654,644	1,628,578	1,785,360	2,035,391

It is therefore of the utmost consequence to the Irish butter makers that, in the face of this enormously increasing importation, they should strive to extend their yield and bring their brands to the highest perfection.

Poultry growing is another branch of agricultural industry which may well attract the experimental farmer, when we consider that over 7 million "great hundreds" of eggs are annually sent over from the continent at the present time. Even as an article of food, the feeding of poultry might be made most profitable; and I remember, when travelling a few years ago in the west and northwest, being particularly struck with the miserable attempts at poultry which constantly figured at the dinner table, a couple of chickens being by no means too much for a fair appetite, and a single one only big enough for a Barmecide's meal. I am glad to see a tendency towards the increase of poultry; but it is a matter of regret that in the case of another Irish tenant, viz., the pig, there is a corresponding tendency to decrease:—

Year.	Pigs.	Poultry.
1870	1,461,215	11,159,002
'71	1,621,423	11,717,182
'72	1,388,571	11,737,529
'73	1,044,454	11,863,155
'74	1,099,186	12,068,375
'75	1,252,056	12,139,138
'76	1,425,042	13,618,500
'77	1,468,712	13,566,083
'78	1,269,399	13,711,174
'79	1,071,990	13,786,976
'80	849,046	—

A most serious question is involved in this decline of pigs, for it is, in point of fact, a question of the decline of the Irish provision trade. The last report of the Belfast Chamber of Commerce states that "the curing of Irish products is still largely dependent upon "whether seasons are favourable, or the reverse, for the farmer. It "seems to be a settled principle with the majority of the Irish "farmers in the north, that they will not—perhaps cannot—purchase "feeding stuffs for their pigs; and if they have not, off their own "land, for nothing as it were, what feeding they require, the young "pigs are not reared, and when autumn comes, the deficiency is "apparent." Now let us consider, that in Chicago alone there were killed for curing last year 6,280,000 hogs, of which a vast proportion comes to England, and even to Ireland. In 1870 the imports of American hams, bacon, and lard into Belfast alone amounted to 1,917 tons, while in 1880 these imports amounted to 11,174 tons. This shows that the Irish either cannot, or, more likely, will not, grow enough to supply even their own wants, for it is not supposable that these imports are not required. An increase in ten years of over 52,000 tons in grain and 9,527 tons of salted meat, besides fresh meat and live animals, into one port alone, is proof at least that the people have an increased purchasing power; and it does seem, that with all Ireland's capability, perfectly suicidal to let the field of operations glide from underneath Irish hands, to be grasped firmly by the Americans. There are unequalled facilities in Ireland for establishing a tinned and canned provision trade. But where is it? Where are the Crosse and Blackwells, the Gillons of Leith, the Moirs of Aberdeen, the Libbys of Chicago, to be found in Ireland? The trade in the matter of tinned provisions might be enormous, if undertaken properly—so large that even a subsidiary trade would arise to supply the tin cans. In the matter of fish, the whole population of Great Britain might be supplied with either fresh or tinned fish from the Irish coast, could but those who might undertake the trade be brought to see it, and were proper communication afforded. Some few years ago a preserved milk factory was set on foot at Mallow by a Mr. Newnham; but I have been told that this is no longer in existence. That the article was excellent I know from experience, and there could be no physical reason why a trade such as that of the Anglo-Swiss condensed milk should not spring up.

The mine of wealth that exists in the Irish sea Fisheries may be estimated by the amount of fish that was exported from Ireland to England in one year (1879), even under the difficulties which beset this branch of industry:—

Towns.	Herrings.	Mackerel. Number of Boxes (2 cwt. each).	Cod.
London	32,989	27,004	11,500
Nottingham	3,667	2,976	4,821
Bradford	17,541	3,000	3,974
Manchester	9,113	11,579	11,022
Sheffield	7,821	6,101	1,276
Wolverhampton	6,910	7,111	3,777
Leeds	7,276	3,089	3,499
Liverpool	22,755	13,976	10,767
Birmingham	12,600	5,005	4,881
	120,672	79,841	55,517

	£
Note.—Computing the herrings at 32*s.* per box (the price at Liverpool), the amount thus realised was	193,075
Mackerel (167,889 boxes at 31*s.* 10*d.*)	267,223
Cod (at 3*l.* per box)	166,551
Total	626,849

The money returns for mackerel, it appears, do not include those which appear in the table, but have reference to the Kinsale catch for the year. Add to this amount 45,039 boxes of salmon, of the value of 422,240*l.*, and there is over a million sterling for the catch of only four kinds of fish, not to mention the oysters, crabs, and lobsters and other harvests of the sea. The statistics of the Irish fisheries, like most of the other industries, show a great falling off from the prosperity of former days; for, fifty years ago, there were 113,000 men and boys employed, with 20,000 boats, or thereabouts; and the trade gradually declined till in 1858 there was only 52,000 hands and 12,000 boats. Their number by 1878 had decreased still further to 20,726 men and boys and 5,759 boats. The year 1879 showed a slight turn of the tide, while the report of last year placed the number of the employed at 24,548. It is true that out of this number 17,813 men and 447 boys were partly occupied in agriculture, though it does not affect the merits of the case, and is moreover a feature of all agricultural countries with a coastline, such as Norway, Sweden, and Denmark. There is no doubt but that most of the improved condition of the Irish fisheries arises partly from the working of the Reproductive Loan Fund, which since its establishment in 1875 has issued in loans over 31,000*l.*, two-thirds of which have already been paid back, proving at once the wisdom of fostering the industry by timely help, and giving the lie to assertions that such assistance demoralises the people. A great stimulus to the fisheries has also been given by the erection of piers and little harbours all along the coast. Over eighty of these now exist, furnishing at once a shelter for the fishermen's and other boats, and a nucleus and point of departure for a fishing trade. The greatest want, however, is that which appertains to all industrial undertakings—the want of means to carry the fish to market—for however productive the fisheries, they are more or less wasted without a ready transport. It is stated that on one occasion 30,000 mackerel were caught in Donegal Bay, which was obliged to be used for manure, on account of there being nothing at hand, save a few cadgers' carts, to take the fish to the nearest market; and this at a time when mackerel were selling in London for 9*d.* a piece. Even the local Irish markets are miserably supplied with fish, and it is almost impossible to get it. I read in the "Irish Times" that a large purveyor in the south, who could have sent tons of fish to Dublin, obtained, net, as his payment, after transport charges and commission, for the finest cod and ling, one halfpenny per pound. The fact is that the railway system in Ireland does not fulfil its mission, either in quantity or quality of work; and it never will until some individual appears on the scene who will do for the railways what Bianconi did for the public by his well-devised car system. The following table is one which is quite in keeping with the universal stagnation, and is one great cause of it indeed :—

Year.	Length of Line Open.	Number of Passengers.	Traffic, Total Receipts.	Net Traffic Receipts of Passengers and Goods.
			£	£
1865	1,838	13,173,649	1,710,506	900,592
'66	1,909	13,074,017	1,762,354	858,294
'67	1,928	14,008,663	1,872,619	890,554
'68	—	—	—	—
'69	1,975	14,009,912	1,987,979	996,293
'70	1,988	14,324,613	2,072,995	1,043,785
'71	2,091	15,547,934	2,223,679	1,090,795
'72	2,101	16,327,416	2,385,166	1,136,630
'73	2,127	16,342,306	2,540,997	1,155,547
'74	2,127	16,535,578	2,522,039	1,121,773
'75	2,148	16,873,661	2,633,103	1,213,606
'76	2,157	17,356,263	2,736,773	1,303,215
'77	2,203	17,266,746	2,769,544	1,303,219
'78	2,259	17,881,146	2,766,601	1,287,248
'79	2,285	16,402,397	2,572,935	1,136,206

What is urgently wanted in Ireland, both for fisheries and everything else, is a cheaper system of railway rates, and an extension of cheaply made light railways throughout the country, and especially to the coasts. It is mentioned in the fishery report for 1879, that direct steam communication between England and Greenore was established by the London and North Western Company in 1873. In 1875 the number of fishing boats which discharged their cargo at that port was 412, but in 1879 had increased to 3,100. If the same railway company were to make a line from their port at Greenore to Donegal and Killybegs, the traffic in fish alone would be something enormous, and the consumers in England would be greatly benefited. Undoubtedly too, the opening up of the country in this manner would bring a considerable amount of money into Ireland, if only in the matter of English tourists and visitors. Donegal, Mayo, Clare, and Kerry counties contain coast and mountain scenery of the highest order, which is far less known to the average excursionist than the fiords of Norway or the passes of the Tyrol, and is likely to be so as long as the commonest form of accommodation in the shape of railways, steamboats, or decent hotels is unprovided for those whom the curiosity to see uncivilised lands, tempts into the west of Ireland.

And now, having gathered together all these facts to prove that (1) industries have existed and flourished in Ireland, and (2) that the majority of these industries are not now flourishing, or are extinct, I will very briefly state what I believe may be in time a remedy for this miserable state of things. I offer the suggestions with great diffidence, not that I do not believe in them myself, but because my main object is to rouse individual examination and promote discussion.

Starting therefore with the firm conviction that the Irish difficulty is not one which can ever be solved by political treatment, but that it is one of pure social and industrial economics, I have three propositions :—

1. A thorough and exhaustive examination should be made of all the industrial resources of which Ireland may be capable; her rocks, minerals, soils, trees, grasses, bogs, water, and in fact every natural feature should be minutely observed, in order that we may know what *can* be done, and what *cannot* be done, with the ulterior object of utilising the resources of nature. Many a well intentioned undertaking has fallen through, simply because it was unsuited to the locality. Let us have some definite answer to the questions: whether the coal of Ireland cannot be won more cheaply or more productively, and if not, why not? whether it is physically impossible that iron should not be profitably smelted there, and why not? what are the reasons that flax is not grown in districts confessed

by all experts to be particularly suitable for it? why the woollen trade cannot be extended? why is not the utilisation of peat fuel a pronounced success? with thousands of other questions of a similar nature. If ten or even twenty thousand pounds were expended in this inquiry, every penny of it would bring back its value a hundred thousand fold; and I can conceive nothing more reasonable than that a Royal Commission should be formed to undertake this duty. Millions have been squandered in Ireland at different times, without a tithe of the claims to national and imperial consideration which this present subject demands; and it is very certain that such a movement on the part of any government would meet with the most cordial reception and assistance in every county, borough, and township in Ireland.

2. Having attained this necessary basis of knowledge, the next point is, how to carry out the development. I am no advocate for sending round the hat, whether for an individual or a nation; but, at the same time, I think that under exceptional circumstances, we are justified in applying exceptional rules. Nobody can dispute the fact that Ireland comes under a very exceptional category, and therefore she cannot be judged by the ordinary hard-and-fast doctrines of trade. It is clear that the encouragement of bounty or premium (call it what we will) was the chief cause of Ireland's most successful industry, viz., the linen trade, taking root; and we are at this moment seeing the improvement that is taking place in the fisheries from the application of this same principle. If it is found good for the State to advance a loan to a local fishery, why should not the State equally advance a loan to help to found a local factory, always supposing that that particular industry has been certified as advisable by the previous examination of the royal commission? The cases are identical, and the treatment may therefore be identical. The authorities in our Indian possessions and our colonies pursue a wise discretion, when they offer rewards tending to stimulate invention and develop discovery. New Zealand followed this plan with relation to *Phonium tenax* as a substitute for hemp, and the same thing was done in India with regard to the capabilities of the fibre of the *Rhœa.* The sugar making processes in the Mauritius owe much to a stimulus of this sort, and parallel cases may be met with in many other countries. Should something of the kind be done for Ireland, I will venture to say that a solution of many of the vexed points referred to in this paper will soon be forthcoming. Amongst objects of paramount importance, should be the construction of cheap and light railways, and in this matter it may be reasonably expected that the landowners and local magnates, whether residential or absentees, would see the absolute necessity for countenancing them, if only as a matter of self interest.

Such a movement as this would of itself pretty well start an iron trade in Ireland, besides giving work for several years to a large majority of the unemployed, while the advantages of the future, by opening up estates, and connecting districts with the sea board and the fisheries, would give a largely increased permanent value to property. If some such course as this were followed, the ball would be set rolling in the direction of energy and inquiry, and there would be no fear of that demoralisation and pauperising of the people which theorists at a distance, well off themselves, are so fond of talking about. Ireland has sunk down so far into the industrial mire, that she *must* be helped out of it, and the only question is, which is the best way to do it?

3. Technical and industrial education must be attended to, so that, simultaneously with the providing of industrial occupation, the workers may be also got ready to understand its value. In schools of science and art, Ireland is lamentably deficient, as the following table for 1879 will show:—

Province.	Place.	Science Students.	Art Students.
Leinster	Dublin (School of Science)................	45	—
	,, (Metropolitan School)	—	403
	,, (Queen's Institute)	—	93
Munster	Cork	21	260
	Limerick	10	107
	Clonmel	—	38
Ulster	Belfast	—	381
	Londonderry....................................	—	90
	Total	76	1,372

What is more wanted, perhaps, than science and art schools, are elementary trade schools, or at all events a course of trade classes added to the existing system. Even considering agriculture to be Ireland's chief industry, it is surprising that there is no veterinary college in Dublin, and that the class books used in the national schools contain no text books on agriculture or horticulture.

These then are the chief points in which I consider that Ireland's future prosperity is most involved. Right or wrong, I do at all events trust that the attention of all thinking men will be attracted to this most important national subject.

Discussion *on* Mr. Bevan's Paper.

Mr. Evan C. Nepean said the question as to whether the industrial resources of Ireland could be extended in any way, had occupied the attention of the present government. Their attention was called to it in this way. We have an army in Ireland of 30,000 men, not 50,000 as many public men had recently stated. Some Irish members of parliament, and some of the Dublin tradesmen, had called attention to the fact, that whilst every soldier on the British establishment cost 100*l.* a year, probably not more than half of that sum is spent in Ireland for the soldiers forming the garrison. To some extent that was true, and the reasons for it were disclosed in Mr. Bevan's paper. At all events, at the desire of the Secretary of State, he had—as having charge of the army contracts—looked into the point, and had made some endeavours to encourage Irish industry, but had not succeeded for the reasons he would mention. With regard to Mr. Bevan's paper, after criticising the basis upon which some of the figures were founded, and remarking that they were not entirely discouraging, Mr. Nepean went on to allude to those matters he had specially looked into; the first was in reference to Irish coal. Mr. Bevan had started, upon the high authority of Sir Robert Kane, with the fallacy that the coal is of excellent quality. He (the speaker) had contracts in Ireland extending over the whole country, and not one single ton of Irish coal is burnt or indeed offered under them. For house purposes it is quite unsuitable. Scotch and Welsh coal are also much cheaper. You have it from the factory inspector that an Irishman will only raise 113 tons per annum, whilst a miner in Lancashire or Durham will raise 300 tons. The result is that the average price of coal in Ireland is 12*s.* per ton at the pit's mouth, as against 7*s.* 6*d.* in South Wales. The average price of Scotch coals screened in Glasgow for shipment is 7*s.* 3*d.* In consequence the coal for the troops at Carrickfergus (Scotland) can be obtained for 11*s.* 9*d.*; in Belfast, Scotch coal is 13*s.*; in Cork, Scotch and South Welsh 13*s.* 11*d.* Again, the ordinary Irish coal is not suitable for gas, though a certain amount of cannel coal is produced. It is not generally known that throughout Ireland—except Dublin, where it is 16—the Act of Parliament only require 12-candle gas as against 16 in England. Mr. Bevan does not say for what purpose the coal raised in Ireland is used, but it is probably burnt in the cabins of the people. Then going to the question of iron ore. Though unable, at short notice, to verify all the figures, Mr. Nepean believed he was right in stating that between five and six tons of material are required to produce one ton of pig iron. It stands to reason therefore, he added, if you look on the map, that when the iron ore and the coal fields are not very near together, the rate for coal being 12*s.*, the cost of moving it, and the cost of raising the ore, will more than swamp the production of iron. Of course the opinions of Sir Robert Kane, to which Mr. Bevan refers, were given at a time when the manufacture of iron and the raising of coal in England were very different to what they now are. There is no doubt at all that, however good the quality of the iron ore—and that in Ireland is good, for it is exported to South Wales, Lancashire, Scotland, and the United States—it cannot be smelted on the spot and made into pig iron, much less into manufactured iron, unless there be a very fortunate combination of circumstances, such as exists in the Middlesborough district, where practically the coal, the iron ore, and the limestone are together. Then go to the question of the linen trade. There is great competition with Holland, France, Germany, and especially Belgium. This latter country sends us some million pounds of yarns, which fact perhaps accounts for the diminution in spinning machinery in Ireland referred to. There is no room for what Mr. Bevan advocates—the extension of the linen factories in the southern counties of Ireland. When Dundee, Leeds, and Belfast are able to meet the whole wants of our clients, no more extension is called for. If you will examine the Board of Trade returns, you will see that, though we have done a larger business lately, we have practically not got so much money for it as we did last year. The reason of the gradual diminution in the woollen industry in Ireland is probably this: in the year 1855 we imported 5 million pounds of rags; in 1880—the last complete year we have—we imported 86 million pounds of rags. In the interim a very large shoddy industry has arisen in Yorkshire, principally at Dewsbury and Batley. These rags come from every district of England and Ireland, as well as from foreign countries, and are converted into shoddy at these places. The old Irish industry was in pure woollen goods. These goods have been imitated in Yorkshire at a considerable reduction in price. Probably more than half of what is sold in Dublin as Irish frieze is made in Yorkshire. To return to my own business: I was empowered by the Secretary of State to say to Irish manufacturers, "There are a good number of articles which we shall be glad to buy in Ireland. Our pattern rooms are at Pimlico and Woolwich, which you can inspect, and we will, if you wish, give you trial orders; and if we find a large amount of business follows, we will consider the question of instituting an inspection department at Dublin, so that you may have every inducement to tender for supplies." I advertised that in every paper, north, south, east, and west in Ireland, that is on the Treasury list. In the result, after some delay, five or six manufacturers came forward. These visited Pimlico and Woolwich, but two only, a maker of tools and a horsehair manufacturer, persevered so far as to demand and obtain trial orders. That is the position of affairs at the present time. It really comes to this: the Irish people do not appear to want the manufactures; the nature of those in the north-east is much like that of the people in Scotland; they are a hardy, industrious race, and where a manufacture is planted in their midst, like that for linen in Belfast, they take to it kindly; but the vast majority of the people who live in the west and south are cottagers, and they are rooted to the soil. Their idea of home is not Ireland as a whole, but the spot or neighbourhood in which they have been born and reared, and they know very little of other parts of their own county. To ask these people to migrate to another part of Ireland to take up manufactures, would be as much expatriation as to ask them to emigrate to Canada or America; and it is almost impossible to expect that they will do it. My impression is, that whilst you have half-a-million of small occupiers who can exist upon their holdings, you will never get manufactures to take a firm hold; you have the linen trade, and perhaps that will increase. I think Mr. Guinness's movement to erect a large woollen factory in Dublin at a cost, it is said, of 200,000*l*., may prove a success. Lord Waterford, who has been referred to by Mr. Bevan, is credited with considerable income from his woollen factory, and if he can make this he is scarcely likely to shut it up. But these are isolated movements, and judging from what I have read or been told of the character of the people, I am afraid, though I think Mr. Bevan's suggestion a most beneficent arrangement so far as Ireland is concerned, that the result of the inquiry of the royal commission he proposed would not be to attain the objects he seeks.

Mr. H. MONCREIFF PAUL said that the reasons for the decline in the agricultural population between 1841 and 1851 and 1851 and 1861 were not far to seek. In 1848 there was the potato famine, followed by the discovery of gold in California. After 1851 there were the gold discoveries in Australia. These induced emigration, as the life in the gold fields had great attractions for the Irish peasant, who preferred piece and contract work, or working on his own account, to labouring at daily or weekly wages for another. The Irishman is averse to the steady plodding work necessary to the agriculturist. The decline in the Irish woollen trade is owing to the competition of colonial coarse wools, which are preferred, not only to English, but Irish growths; and the development of the shoddy trade in Yorkshire, alluded to by a previous speaker, together with the present fashion in ladies' apparel, have also tended to prevent the more extended use of Irish woollen materials; but this was only a temporary check to the trade. Cork butter being well adapted for shipment to a distance, had been largely consumed in the Australian colonies in past years, but as the colonists had now become makers, Ireland had lost that market, without seeking to introduce the improvements requisite to enable her successfully to compete with Brittany and Normandy, as well as the other countries mentioned by Mr. Bevan, in the production of butter. The hog industry in Ireland has not developed as it has done in America by reason of the absence of cheap food for rearing pigs. In America maize was plentiful, and the export of bacon from the United States was, as has been well said, a cheap method of packing maize. As a free trader, he deprecated anything like protection to Irish industries. Sufficient protection was afforded in the cost of transport from other competing countries. New Zealand *Phonium tenax* was not a substitute for flax, but hemp, being largely used for rope-making purposes and in the construction of telegraph cables.

Mr. ROWLAND HAMILTON said that in England also we were already familiar with such transfers of trade as had taken place in Ireland; the ship-building industry for instance had to a great extent gone from the Thames to the Clyde, and that of iron ores from Sussex; the coal raised in the north at the present moment was brought into sharp competition in Somersetshire with produce raised in that county itself. He contended that Ireland is to be improved not so much by large undertakings, as by the cultivating of its industries by many men who are sure of reaping the fruits of their own industry, and can supply personal supervision and constant instruction in the industries required. England in former days had owed a good deal in agriculture to the training of its "squires," men with comparatively small estates, the working of which they personally superintended, while taking their part also in all the needful work of local administration. To refer to another point, Mr. Bevan said that about half the population under 15 years old should be engaged in some productive work: this would imply that children should leave school soon after 6. He hoped no School Board officers shared this opinion.

Mr. James Wilson said that, judging from the remarks of gentlemen who had spoken, he would be induced to despair of Ireland. Mr. Nepean had contradicted himself, inasmuch as after declaring that woollen manufactures could not succeed in the south of Ireland, he mentioned that the Marquis of Waterford was making 4,000*l.* a year from that industry, while he prophesied for Mr. Guinness a great success in his movement. From personal knowledge Mr. Wilson testified that some of the coal of Ireland was of excellent quality. From a combination of circumstances that could not be gone into without trenching on matters hardly befitting that occasion, Ireland's industries were in their present state. It is well known that the exorbitant royalties exacted by owners of the soil, the backward state of communication and other things, had combined to retard the development of such coal mining as would certainly be otherwise carried on. Mr. Wilson, after quoting Professor Hull's estimate of Ireland's coal possessions as 182,280,000 tons, expressed his conviction that Ireland would never reap much advantage from those possessions, for she had been unfortunate in the geological ages, and the fiat of nature was upon this head against her. But there were other industries which Ireland is eminently qualified to take a leading part in, notably that of pottery, for she had the largest development of the raw material to be found anywhere in the United Kingdom; besides which the Irish people had great natural taste, such as would help them in this direction. The linen manufacture had taken root. Mr. John Stuart Mill admitted that it might be useful to foster industry, and he (Mr. Wilson) could not help thinking that when this country doles out money to Ireland for various purposes for the supply of the wants of the people, it would often be better spent in creating or fostering industry. He did not see why, if landowners would do their duty, flax might not be grown in the south of Ireland. Technical schools might be established to teach the people agriculture and trade, and the Government might help by connecting the agricultural with the normal schools.

Mr. W. Martin Wood alluded to the analogy presented between Ireland and India, in regard to their enormous capabilities, latent resources, and so on. There was an immense gap between that and the production, and the question is how to bridge it over? The first two speakers threw their audience back upon the old despairing feeling which so many had about Ireland, and at times almost about India. He urged the encouragement of the opposite feeling however, that the industrial energy and capacity of Ireland can be restored. Ireland has all the requisites for progress except one, that is capital. It is exactly the case with India. The question is, how is working capital to be obtained for both countries. The industrial regeneration of Ireland is not to be looked for in large undertakings, but in a number of tentative, moderate, and manageable enterprises.

Mr. C. Walford spoke of the one thing missed in Ireland—the energy of the people. All the enterprising young men leave the country. They go to Canada, the United States, and elsewhere. Many industrial enterprises he had visited in those countries had been managed by energetic young Irishmen. So long as brain power goes away, so long will manufacturing enterprise famish. The present state of things exist, and he did not think a royal commission, or bounties, or any other method of wet-nursing industries, would compensate for that loss of power and energy which alone could make a country great.

Mr. Bevan in reply said he thought all the speakers had run very much in the same course except in matters of detail. With regard to what Mr. Nepean had said, that one of the great necessities of the iron trade was to have the coal and iron together, he (Mr. Bevan) had endeavoured to show that such was the case in Ireland, and upon that very reason he founded his hopes that an iron trade might be fostered. As regards the coal, it never did rank high, and he did not suppose it ever would, but he did not agree that it was worthless. A good deal depended upon the way in which a colliery is worked, as he had found by experience, and he could not help thinking that one of the great drawbacks in regard to Irish coal is bad working; at the same time he was anxious to ascertain how far the exorbitant royalties referred to had knocked the coal industry on the head. He thought Mr. Nepean in his remarks took away the element of hope. Things are very bad in Ireland, as bad perhaps as they can be, but that is no reason why an attempt should not be made to make them better. We are too apt to assume in England that things must remain bad because they have always been so, and he thought a great reason for Irish deficiency in industry is because the people have no hope. He believed that if shown how they can better their position and become more self-dependent,—he would not say by large industries, for he believed small industries afforded the real way to Irish improvement—if shown that money is put within their reach, the Irish peasantry is shrewd enough to grasp at it.

MISCELLANEA.

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I.—*The Agricultural Returns for the Year* 1881.

The following report of Mr. R. Giffen, chief of the statistical and commercial department of the Board of Trade, on the Agricultural Returns of Great Britain for the year 1881, with summary tables, is given in continuation of a series of similar notices to be found in the Society's *Journal* for previous years:—

"I have the honour to submit the agricultural returns of Great Britain for the year 1881, with summary returns for Ireland for the same year. The data for Great Britain have been collected as usual by the officers of the Inland Revenue, while the figures for Ireland have been supplied to the Board of Trade by the registrar-general for Ireland. The data for the Isle of Man and the Channel Islands, which are included in the general totals, have been collected by officers under the direction of the respective governors of those districts. The date for which the returns in Great Britain, the Isle of Man, and the Channel Islands, were directed to be obtained, as has been the case for several years past, was the 4th of June. A summary was also published on the 15th of August, two days earlier than in any previous year, subject of course to the usual corrections in the completed return.

"The extent to which the farmers of Great Britain make actual returns, instead of leaving the officers of the Inland Revenue Department to make estimates of their own, remains much the same as in previous years; the estimates are only a very small percentage of the total. The number of separate returns obtained from occupiers of land in Great Britain has been 550,457, and from owners of live stock only 4,861, making a total of 555,318, while the returns obtained by estimate were 16,452, or about 2·9 per cent. only of the total. The acreage obtained by estimate amounts to 1,584,218, out of a total of 32,211,512 returned, or 5 per cent. In 1880 the number of returns obtained from occupiers was 554,058, and from owners of live stock only 5,001, making a total of 559,059, while the number obtained by estimate was 16,097, so that there was a small increase both in number and percentage in 1881 as compared with 1880. As regards the acreage estimated, however, the result is different. The acreage estimated in 1880 was 1,640,571 acres, or 56,353 acres more than in 1881, the percentage of the whole acreage dealt with being, however, much the same. It has again to be noticed as in former years that while in Scotland the percentage of returns obtained by estimate is larger than in

England as regards numbers, being over 6 per cent. in Scotland as compared with 2·8 per cent. in England, yet the acreage estimated is in proportion much less, being 0·8 per cent. only in Scotland as compared with 6·3 per cent. in England. In Wales the number of estimated returns is the smallest in proportion, being 61 only out of 59,000, or barely 0·1 per cent., and the acreage represented being 0·1 per cent. of the total. It would seem that in England the class of occupiers not making returns are engaged in farming on a larger scale than the class of occupiers not making returns in Scotland or Wales. In England the average acreage of the occupiers not making returns is about 135 acres, and in Scotland 7½ acres only. It appears, in fact, that in Scotland the great number of occupiers who do not make returns are in the counties of Inverness, and Ross and Cromarty, the number in Inverness being 1,815, and Ross and Cromarty 2,956, or 4,771 altogether out of a total of 4,890 estimated.* In England the number and percentage of estimates are more generally distributed, some of the most important counties agriculturally showing large figures. It is to be noticed, however, especially in England, that the tone of the collectors as regards the disposition of farmers to make returns is in many districts more and more satisfactory every year, and on the whole there is a steady improvement. The percentage of estimates is now too small to have any effect on the trustworthiness of the general results, the estimates themselves being made with care by the officers of the Inland Revenue Department, but the collection of the returns being primarily for the benefit of the agricultural interests it may be hoped that the small percentage of farmers who now stand out and make no returns will diminish, so that the labour now thrown on the officers of the Inland Revenue will be reduced, and the data for the general results obtained will be quite uniform throughout.

"A few changes have been made in the usual tables appended to the return, which will be noticed in the course of this report, but it may be useful to mention at the outset that there is included an amended return as to woods (Table No. 3) which is the same return as that included in last year's report, but with corrections which the further inquiries referred to in the last report as in progress have shown to be necessary. There is also included (Table No. 6) a special return of unoccupied farms or parts of farms of not less than five acres unoccupied or not in cultivation, which has been obtained in consequence of a desire very generally expressed, and specially in pursuance of a promise made by the president of the Board of Trade in reply to a question by Mr. Barclay in the House of Commons on the 21st of March last.

"Of the returns which have been thus obtained, the following appear to be the general results. In Great Britain the area reported to be cultivated in 1881 amounts to 32,212,000 acres as compared with 32,102,000 acres in 1880, an increase of 110,000 acres in all, which is ascribed by the collectors for the most part to the enclosure or reclamation of mountain and waste land in different parts of the country, and is due in a very small degree to greater accuracy in the returns, which are now more largely compared with the ordnance survey. The increase, as has been the case for some years, is exclusively in permanent pasture, the acreage under tillage rather tending to diminish. The area under corn crops is 8,848,000 acres only as compared with 8,876,000 acres in 1880, a decrease of 28.000 acres. The area under green crops is 3,510,000 acres as compared with 3,476,000, an increase of 34,000 acres only. The area under clover and grasses under rotation is 4.342,000 acres, a decrease of 92,000 acres; and the area under arable lands altogether is 17,568,000 acres as compared with 17,675,000 in 1880, a decrease of 107,000 acres. The increase in permanent pasture, on the other hand, is 216,000 acres, from 14,427,000 acres in 1880 to 14,643,000 acres in the present year. A movement which has gone on without interruption almost since the commencement of these returns, and which has, in conjunction with some changes in definition which ought of course to be allowed for, increased the area under permanent pasture from 12,435,000 acres in 1871 to 14,427,000 acres in 1880, while the arable area fell from 18,403,000 to 17,675,000 acres, has thus been continued during the present year. This continued decrease in arable land and increase of permanent pasture is unanimously ascribed by the collectors in the present as in former years to the low prices of grain and the pressure of American competition. As regards live stock, again, the one leading fact to notice is the large decrease in sheep. The total number of cattle is 5,911,642. as compared with 5,912,046 in 1880, showing hardly any change. The number of pigs has increased from 2 millions to 2,048,000,—not an important difference in amount looking to the returns generally, 'pigs' forming the least important portion of the live stock. But the decrease in sheep is about 8 per cent., from 26,619,000 to 24,581,000, or 2,038,000. The decrease, which is pretty equally distributed over England, Wales, and Scotland, is ascribed to the severe weather of last winter and spring, which killed large numbers, to a bad lambing season in many districts, especially in the north, and to 'liver rot,' which not only was widely fatal, but caused farmers to sacrifice their stocks. The decrease, it may be remarked, is the more important as it succeeds a decrease which has been going on by steps since 1874, when the total was 30,314,000, the reduction from that time to the present being 5,733,000, or about 19 per cent. Horses on the other hand show a small increase over last year, which is the more satisfactory as there has been a great increase on this head for a good many years past, and there would appear to be some reason for thinking that the breeding and rearing of horses is, in fact, to some extent taking the place of the industry of raising other descriptions of live stock.

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* With regard to these counties it should also be explained that to a large extent the returns said to be made by estimate in these counties are not really estimates, but actual statements which the collectors have taken down verbally from the smaller occupiers who are Gaelic speaking, and are sometimes without a sufficient knowledge of the English language to fill up the forms themselves.

"The variations in the details of particular crops or of particular parts of the country do not seem to be of great interest, and are little remarked on by the collectors in their observations. As regards corn crops, the most important fact, apart from the slight decrease in the total, seems to be that there has been a diminution of the area under both wheat and barley, and an increase of the area under oats. The total under wheat is 2,806,000 acres, a decrease of 103,000 acres from 1880; and under barley 2,442,000 acres, a decrease of 25,000 acres from 1880; while under oats the total is 2,901,000 acres, an increase of 104,000 acres over 1880. Among the minor corn crops there is an increase of 14,000 acres in the area under beans, and a decrease of 18,000 acres under peas. The decrease in wheat and barley and increase in oats are exclusively in England and Wales, the changes in Scotland being rather in the opposite direction. As regards green crops again, the most important variations, apart from the small increase already noticed, appear to be an increase of 28,000 acres in potatoes, 11,000 acres in turnips, and 8,000 acres in vetches, and a decrease of 18,000 acres in the area under cabbage, kohl-rabi, and rape. Among the minor crops there is a diminution from 8,985 acres to 6,534 acres under flax, and from 66,698 acres to 64,943 acres under hops. There is also a decrease of 17,000 acres in bare fellow, contrasting, however, with the large increase of 91,000 acres last year, so that there is still an increase compared with 1879. The changes in clover and permanent pasture above noticed call for no further remark.

"As regards live stock, there are some rather interesting changes in detail, in addition to the above great reduction in the total of sheep and lambs. Thus, in cattle where the aggregate is substantially unchanged, it is found that there is an increase of 29,000 in the number of cows and heifers in milk or in calf, an increase of 45,000 in the number of other cattle of two years and above, and a decrease of 74,000 in the number of other cattle under two years. How far these changes indicate more or less favourable conditions for the increase of production and stock, it will be for those specially acquainted with the subject to consider, but for the present it would seem the increase is in the more valuable stock. In sheep again, the decrease of 2 millions is almost equally distributed in amount between sheep one year old and above, and sheep under one year, and is thus heaviest in proportion in sheep under one year. Thus, while the diminution in sheep one year and above is from 17,186,000 to 16,143,000, or about 6 per cent., the decrease in sheep and lambs under one year is from 9,433,000 to 8,438,000, or about 10½ per cent. The proportions in each class in England, Wales, and Scotland, respectively, appear to correspond generally with those for the whole of Great Britain, with the exception of sheep under one year in Wales, where the decrease is over 14 per cent. The severity of the winter in Wales, according to the reports of the collectors, was intense, and in particular counties there is a still larger percentage of decrease, as there is in one or two of the Scotch counties. There being no classification of pigs according to age, as there is for cattle and sheep, it is not possible to add anything in detail to what is above stated. The increase of 48,000 is almost wholly in England and Wales. As regards horses, the increase is pretty equally distributed over the various descriptions, with the exception of mares kept solely for the purposes of breeding, in which there is a small diminution. The importation of horses into the United Kingdom from abroad, as well as of other kinds of agricultural produce, continues to go on steadily, although in this case there is no doubt of the continuous increase of the home stock.

In 1879, the number of horses imported was 15,246; in 1880, the number was 9,264; and in 1881, to the end of August, the number has been 6,632 as compared with 6,596 in the corresponding period of 1880. Unfortunately, since the abolition of the duty on horses in 1874, there have been no statistics of the number of horses in the United Kingdom, exclusive of those which come into the Agricultural Returns as being used in agriculture or as brood mares and their foals.

"The figures for Ireland exhibit changes of a somewhat different character. Instead of an increase there is a decrease of 53,000 acres in the cultivated area, which is no doubt partly due to the difficulty of distinguishing between permanent and mountain pasture. So far then there may be no real difference between the changes in Ireland and Great Britain, but there is a real difference in the other changes, the area under both corn and green crops having increased in Ireland, while the area under permanent pasture has diminished even more than the above diminution in the total area cultivated. Corn crops have increased altogether 10,000 acres, and it appears that this corresponds very closely to the increase of the acreage under oats, an increase of 6,000 acres under wheat being balanced by a decrease of equal amount under barley. Green crops again have increased 21,000 acres, but this is found to be almost exclusively due to the large increase of 34,000 acres under potatoes, there being a slight decrease under the heads of turnips, cabbages, and vetches. Clover, sanfoin, and grasses under rotation also show an increase of 89,000 acres. On the other hand, the decrease in permanent pasture amounts to 170,000 acres, corresponding nearly to the above increase in corn and green crops and clover, plus the total apparent diminution of the cultivated area. There is a diminution of 10,000 acres in the area under flax, and an increase of 6,000 acres under bare fallow. The changes as regards live stock are also somewhat different from those of Great Britain. There is a decrease of 10,000 in the number of horses as compared with an increase in Great Britain. On the other hand, there is an increase of 33,000 in cattle, the numbers in Great Britain showing, as we have seen, hardly any change. The decrease in sheep, amounting to 303,000, is in much the same proportion as the decrease in Great Britain; while the increase in pigs, amounting to 239,000, is much larger both in numbers and proportion than the increase in Great Britain. The changes on the whole appear to indicate a considerable difference of the seasons in 1880 in Great Britain and Ireland respectively, the result being variations of a different character in the agricultural arrangements of the present year.

"The variations in Great Britain and Ireland having thus been of an opposite character, the figures for the United Kingdom, including the Isle of Man and Channel Islands, necessarily show comparatively little change, except as regards sheep and pigs, where the changes in both Great Britain and Ireland are in the same direction, a decrease in the one case and an increase in the other. The totals for the Isle of Man and the Channel Islands are of course too small to affect the general result. Actually, a comparison of the principal figures for the United Kingdom, including the Isle of Man and the Channel Islands, shows the following changes only:—

Acreage.	1881.	1880.	Increase (+) or Decrease (−).
	Acres.	Acres.	Acres.
Total cultivated area	47,646,112	47,586,700	+ 59,412
,, of corn crops	10,654,697	10,672,086	− 17,389
,, of green ,,	4,803,211	4,746,293	+ 56,918
,, of clover, &c.	6,384,172	6,389,232	− 5,060
,, of permanent pasture	24,767,767	24,717,092	+ 50,675
LIVE STOCK.	Nos.	Nos.	Nos.
Horses	1,923,619	1,929,680	− 6,061
Cattle	9,905,013	9,871,153	+ 33,860
Sheep	27,896,273	30,239,620	−2,343,347
Pigs	3,149,173	2,863,488	+ 285,685

"The net result would appear to be a comparatively stationary agriculture in the two years; the decrease in sheep, though large, being partly set off by the large increase in pigs and the slight increase in cattle.

"Taking the figures of 1881 as the basis, a comparison of the principal figures of the agriculture of the United Kingdom results in the following summary. There is a cultivated area in all of 47,646,000 acres, as compared with a total area of 77,829,000 acres, so that 61 per cent. of the area is cultivated. Of the 30 million and odd acres uncultivated, however, about one-half is in Scotland, where the proportion of the cultivated to the whole area is only about 25 per cent., the proportion in England and Ireland rising to about 74 per cent. Of the cultivated area in the United Kingdom, more than one-half is in permanent pasture, the proportions of the four main divisions of the area, and of the principal crops in one or two of these divisions being as follows:—

Main Divisions.	Acres.	Per Cent. of Cultivated Area.
1. Corn crops	10,655,000	22½
2. Green ,,	4,803,000	10
3. Clover, &c.	6,384,000	13½
4. Permanent pasture	24,768,000	52
Other crops	1,036,000	2
	47,646,000	100
SINGLE CROPS.		
Wheat	2,967,000	6
Barley	2,663,000	5½
Oats	4,306,000	9

"According to this the corn crops which are most frequently referred to in discussions as to the state of agriculture in the United Kingdom are only about a fifth part of the total, while the wheat crop alone is only 6 per cent. of the total, being exceeded in importance, as regards area, by oats which are 9 per cent. of the total. In discussions as to the harvest yield the relative importance of the different crops ought, however, to be constantly kept in view.

"A similar comparison of the live stock with the acreage would show the following results:—

	Numbers.	Proportion per Hundred Acres.
Horses	1,924,000	4·04
Cattle	9,905,000	20·79
Sheep	27,896,000	58·55
Pigs	3,149,000	6·61

"The question suggested by this will of course be the relative importance of the different kinds of live stock in agricultural economy. This will depend on the importance of the 'units' of horses, cattle, sheep, and pigs respectively, and is complicated as regards horses by the fact that horses are not merely stock from which there is a produce, but are the instruments of the cultivation itself, so that in comparing the proportion per acre of horses with the proportion of other stock, as regards produce only, a deduction ought to be made. It is to be noticed also that a disproportionate number of the sheep are in Scotland, where the number per acre is more than double the number per acre for the United Kingdom, the reason no doubt being that a large part of the waste or mountain land is really employed in rearing sheep. In other words, the so-called uncultivated land in the United Kingdom really contributes to some extent to the agricultural production.

"Passing from a comparison of the main results of the returns for the present year as compared with last, I have to call attention to the special return as to unoccupied farms or parts of farms above referred to (Table VI). This return has been obtained, as above stated, in pursuance of a special demand for it, and is for England and Wales only, the question of unoccupied farms in Scotland not having given rise to any similar demand. The broad result is that the total acreage of unoccupied farms and plots of land in England and Wales is returned as 43,817 acres, the number of separate farms wholly unoccupied being stated as 321 of 38,816 acres, and the number of detached plots of arable land of not less than five acres being stated as 191 of 5,001 acres. Complete details as to each county are given, so that those interested will be able to check the returns. It is necessary to state that some difficulty appears to have been encountered by the officers of the inland revenue in preparing the figures, in consequence of the difficulty of distinguishing between 'bare fallow' and unoccupied land. But there seems no reason to doubt that care has been taken by the officers of the inland revenue, and that the figures when checked by the local knowledge of those interested will be useful.

"I have next to notice the usual table prepared for this report showing the relative course of agriculture in the counties of England, arranged in two divisions of chiefly grazing and corn-growing counties. The *grazing*, or *western*, division, it may be explained, includes twenty-one counties:—Northumberland, Cumberland, Durham, Westmoreland, York (North and West Ridings), Lancaster, Chester, Derby, Stafford, Leicester, Salop, Worcester, Hereford, Monmouth, Gloucester, Wilts, Dorset, Somerset, Devon, and Cornwall. The *corn*, or *eastern*, division includes twenty-one counties:—

York (East Riding), Lincoln, Nottingham, Rutland, Huntingdon, Warwick, Northampton, Cambridge, Norfolk, Suffolk, Bedford, Bucks, Oxford, Berks, Hants, Hertford, Essex, Middlesex, Surrey, Kent, and Sussex. Although the number of the counties is the same in each of these groups, the total acreage is larger in the grazing than in the corn division, in the ratio of 53 to 47 per cent. of the total acreage under crops and grass in England. The following is the table:—

Acreage under Crops, and Number of Live Stock, in Grazing Counties and in Corn Counties of England, and Percentages of the Totals in England in Grazing and Corn Counties respectively.

	In Grazing Counties.		In Corn Counties.	
	Acreage and Number.	Percentage of Total for England.	Acreage and Number.	Percentage of Total for England.
Total acreage returned under all kinds of crops, bare fallow, and grass	13,168,987	53·4	11,494,950	46·6
Acreage under—				
Wheat	927,392	35·1	1,713,653	64·9
Barley	703,155	34·7	1,326,344	65·3
Oats	848,563	52·2	778,441	47·8
Rye	11,372	35·1	21,000	64·9
Beans....................................	104,750	25·1	313,039	74·9
Peas	46,271	21·7	166,978	78·3
Total under above corn crops	2,641,503	37·9	4,319,455	62·1
Potatoes	205,963	59·2	141,770	40·8
Turnips and swedes...............	658,826	44·6	819,856	55·4
Mangold	95,849	28·2	243,536	71·8
Carrots	3,255	23·5	10,600	76·5
Cabbage, kohl-rabi, and rape.	50,716	36·7	87,625	63·3
Vetches, lucerne, &c.	109,715	30·1	254,242	69·9
Clover and other grass under rotation	1,339,628	52·6	1,209,324	47·4
Total under above green crops and grass under rotation............................	2,463,952	47·1	2,766,953	52·9
Bare fallow	291,798	39·2	453,098	60·8
Permanent pasture	7,760,961	66·6	3,894,864	33·4
Flax	2,024	31·6	4,386	68·4
Hops	8,749	13·5	56,194	86·5
Orchards, &c.	135,010	75·0	45,028	25·0
Woods, &c.	761,892	52·0	704,146	48·0
Number of horses used solely for agriculture	372,370	48·2	399,717	51·8
Number of horses unbroken and mares for breeding	181,027	56·2	140,989	43·8
Number of cattle.......................	2,710,787	65·2	1,449,298	34·8
„ sheep	7,942,622	51·6	7,440,234	48·4
„ pigs	847,230	48·9	886,050	51·1

Acreage of each Description of Crop in Grazing and Corn Counties of England, and Percentage of Total Cultivated Acreage in each Division under each Description of Crop.

	In Grazing Counties.		In Corn Counties.	
	Acreage.	Percentage of Total Cultivated Acreage in the Division.	Acreage.	Percentage of Total Cultivated Acreage in the Division.
Acreage under—				
Corn crops	2,641,503	20·1	4,319,455	37·6
Green "	1,124,324	8·5	1,557,629	13·6
Clover and other grass under rotation	1,339,628	10·2	1,209,324	10·5
Bare fallow	291,798	2·2	453,098	3·9
Permanent pasture	7,760,961	58·9	3,894,864	33·9

"These percentages are almost exactly the same as those which were published in last year's report, as might have been expected from the small changes in the area under particular crops. Almost the only noticeable variation is the increase in the proportion of unbroken horses kept in grazing counties from 55·5 to 56·2 per cent., with a corresponding reduction in the proportion kept in corn counties from 44·5 to 43·8 per cent.

"Comparative tables have also been added, according to the practice of the last two years, showing the imports of food, the prices of agricultural produce, and other particulars for a series of years. These tables are in continuation of parliamentary returns which have been prepared in the department from time to time in consequence of special demands which have arisen, and may be assumed to contain information on points in which farmers and those connected with the agricultural interests are concerned. In addition there have been prepared for the present report one or two tables containing information as to the increase in the imports of feeding stuffs, and imports of manure, which appear to supplement the information contained in the above returns.

"The returns of the crops and live stock in British possessions and foreign countries, as was stated last year, ceased to be included with this report several years ago, the principal figures being annually published in the statistical abstracts relating to the colonies and foreign countries; but with a view of quoting briefly in this report the principal results in the Australasian colonies and in the United States, special application has again been made to the heads of the statistical departments in Australasia, and the valuable monthly reports on the condition of the crops and live stock prepared by the department of agriculture at Washington have been consulted with reference to agriculture in America.

"The returns from New Zealand have not yet been received, but taking the previous year's figures for that colony, it appears from the various colonial accounts that over 3¼ million acres of land in Australasia were under wheat in the last harvest, being two and three quarters times the area under wheat there ten years ago, and exceeding by 360,000 acres the wheat acreage of the United

Kingdom. The produce, which last year was more than 13 bushels per acre, was this year about 9⅓ bushels, the largest wheat growing colony (South Australia) yielding 5 bushels to the acre, Victoria not quite 10 bushels, and New South Wales nearly 15 bushels. Barley is not yet an important crop in Australia, but its acreage was this year 163,000, against 137,000 in 1880, and the produce averaged over 21 bushels per acre. Oats were grown on 507,000 acres, and yielded about 30 bushels per acre.

"The growth of maize in the Australasian colonies is confined almost entirely to New South Wales and Queensland. The area under that crop in the former colony was 125,600 acres, and the produce over 35 bushels to the acre, or from 7 to 8 bushels more than in the United States. Potatoes in Australia occupied 108,000 acres, and the produce was 363,000 tons or about 3⅓ tons to the acre. The acreage under vineyards in Australia was 15,400 acres, being an increase of 1,300 acres over the previous year. The produce was about 1,655,000 gallons of wine. About 24,000 gallons of wine were imported into the United Kingdom from Australia in 1880, and New Zealand and Tasmania also consumed some of the surplus produce of the wine-making colonies. As regards live stock in Australia, in the absence of this year's returns for two important colonies, Victoria and New Zealand, it is impossible to make a very close comparison with past years. In New South Wales there is an increase from last year's figures in all descriptions of stock except horned cattle, which have fallen off by 334,000; on the other hand sheep, of which there are now 32 millions (or double the number of 1870) have increased by 3¼ millions. The approximate number of live stock in the whole of Australasia for the present year was of horses 1,146,000, horned cattle 7,923,000, sheep 69,992,000, and pigs 930,000.

"With respect to the United States the latest returns state the acreage under winter wheat to be about 4 per cent. in excess of that of 1880, while the acreage of spring wheat has declined. The total acreage is said to be about the same as last year, which was 38 million acres. Maize, which covered 62,317,000 acres last year, shows an increase of a little less than 2 per cent. Barley, 1,843,000 acres last year, appears to have slightly fallen off. Rye, 1,767,000 acres in 1880, has increased about 2 per cent. Oats, 16,187,000 acres last year, have declined about 2 per cent. The returns of the yield of these crops have not yet been received, but the reports received from the department of agriculture at Washington state the condition of both the wheat and maize crops to be much less favourable than last year. The yield of wheat in 1880 was 498,550,000 bushels, and that of maize 1,717,434,000 bushels. It appears probable that the yields of these crops for the present year will show a considerable decline. It is, however, estimated that the surplus of wheat from last year's crops will go a long way towards supplying any deficiency that may arise from the less favourable conditions of the present year. The latest returns which have been received with regard to live stock in the United States are those for the 1st January, 1880, viz., horses 11,200,000, mules 1,729,000, cattle 33,258,000, sheep 40,765,000, pigs 34,034,000."

APPENDIX.

TABLE A.—*Total Area and Acreage under each kind of Crop, Bare Fallow, and Grass; and* 1880, *in each Division of Great Britain, with similar Particulars*

	England.		Wales.		Scotland.	
	1881.	1880.	1881.	1880.	1881.	1880.
	TOTAL AREA AND ACREAGE UNDER CORN CROPS,					
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Total area	32,597,	32,597,	4,722,	4,722,	19,496,	19,496,
„ acreage under crops, bare fallow, and grass	24,664,	24,596,	2,785,	2,768,	4,763,	4,738,
Corn Crops—						
Wheat	2,641,	2,716,	90,	90,	75,	74,
Barley or bere	2,029,	2,061,	142,	143,	271,	264,
Oats	1,627,	1,520,	244,	240,	1,031,	1,037,
Rye	32,	32,	2,	2,	7,	7,
Beans	418,	404,	3,	3,	20,	20,
Peas	213,	231,	2,	2,	2,	1,
Total of corn crops	6,961,	6,994,	482,	478,	1,405,	1,404,
Green Crops—						
Potatoes	348,	325,	42,	39,	189,	187,
Turnips and swedes	1,479,	1,473,	66,	65,	491,	486,
Mangold	339,	334,	7,	8,	2,	2,
Carrots	14,	15,	—	1,	1,	1,
Cabbage, kohl-rabi, and rape	138,	155,	1,	1,	4,	5,
Vetches and other green crops, except clover or grass	364,	357,	7,	7,	17,	16,
Total of green crops	2,682,	2,659,	125,	120,	704,	697,
Clover, sanfoin, and grasses under rotation	2,549,	2,646,	331,	332,	1,462,	1,456,
Permanent pasture or grass not broken up in rotation (exclusive of heath or mountain land)	11,656,	11,462,	1,815,	1,806,	1,172,	1,159,
Flax	6,	9,	—	—	—	—
Hops	65,	67,	—	—	—	—
Bare fallow or uncropped arable land	745,	760,	31,	31,	20,	22,
	NUMBER OF LIVE STOCK, AS RETURNED UPON					
Horses (including ponies), as returned by occupiers of land—						
Used solely for purpose of agriculture, &c.	772,	767,	72,	73,	143,	141,
Unbroken horses and mares kept solely for breeding	322,	326,	66,	62,	50,	53,
Total of horses	1,094,	1,092,	138,	135,	193,	194,
Cattle—						
Cows and heifers in milk or in calf	1,621,	1,593,	260,	261,	389,	387,
Other cattle—						
2 years of age and above	1,103,	1,076,	133,	126,	270,	259,
Under 2 years of age	1,435,	1,489,	262,	267,	438,	453,
Total of cattle	4,160,	4,158,	655,	655,	1,096,	1,099,
Sheep—						
1 year old and above	9,819,	10,630,	1,771,	1,905,	4,553,	4,651,
Under 1 year old	5,564,	6,199,	696,	813,	2,178,	2,421,
Total of sheep	15,383,	16,829,	2,467,	2,718,	6,731,	7,072,
Pigs	1,733,	1,698,	192,	182,	123,	121,

* From Returns prepared by the Registrar-General for Ireland, and laid before Parliament.

APPENDIX.

and Number of Horses, Cattle, Sheep, and Pigs, as returned upon the 4th June, 1881 *for Ireland,* and with Total for United Kingdom.* [000's omitted.]

Great Britain.		Ireland.		United Kingdom, including Isle of Man and Channel Islands.		
1881.	1880.	1881.	1880.	1881.	1880.	
GREEN CROPS, BARE FALLOW, GRASS, &c.						
Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	
56,815,	56,815,	20,820,	20,820,	77,829,	77,829,	Total area
32,212,	32,102,	15,304,	15,358,	47,646,	47,587,	„ acreage under crops, bare fallow, and grass
						Corn Crops—
2,806,	2,909,	154,	149,	2,967,	3,066,	Wheat
2.442,	2,467,	211,	219,	2,663,	2,695,	Barley or bere
2,901,	2,797,	1,392,	1,382,	4,306,	4,192,	Oats
42,	41,	7,	7,	49,	48,	Rye
440,	427,	11,	10,	451,	436,	Beans
217,	234,	1,	1,	218,	235,	Peas
8,848,	8,876,	1,777,	1,766,	10,655,	10,672,	Total of corn crops
						Green Crops—
579,	551,	854,	821,	1.443,	1,381,	Potatoes
2,036,	2,024,	295,	303,	2,341,	2,336,	Turnips and swedes
349,	343,	†45,	† 42,	395,	385,	Mangold
16,	17,	‡4,	‡ 4,	20,	21,	Carrots
143,	162,	34,	42,	178,	204,	Cabbage, kohl-rabi, and rape
388,	380,	36,	36,	427,	418,	Vetches and other green crops, except clover or grass
3,511,	3,477,	1,269,	1,247,	4,803,	4,746,	Total of green crops
4,342,	4,434,	1.998,	1,910,	6,384,	6,389,	Clover, sanfoin, and grasses under rotation
14,643,	14,127,	10,092,	10,261,	24.768,	24,717,	Permanent pasture or grass not broken up in rotation (exclusive of heath or mountain land)
7.	9,	147,	158,	154,	167,	Flax
65,	67,	—	—	65,	67,	Hops
796,	813,	21,	15,	818,	829,	Bare fallow or uncropped arable land
THE 4TH JUNE, 1881 AND 1880.						
						Horses (including ponies), as returned by occupiers of land—
987,	980,	489,	499,	1,924,	1,930,	Used solely for purpose of agriculture, &c.
438,	441,					Unbroken horses and mares kept solely for breeding
1.425.	1,421,	489,	499,	1,924,	1,930,	Total of horses
						Cattle—
2,270,	2,242,	1,391,	1,397,	3.677,	3,655,	Cows and heifers in milk or in calf
						Other cattle—
1,506,	1,461,	901,	864,	2.412,	2,330,	2 years of age and above
2.136,	2,210,	1,663,	1,660,	3,816.	3,886,	Under 2 years of age
5,912,	5,912,	3,954,	3,921,	9.905,	9,871,	Total of cattle
						Sheep—
16.143,	17,186,	2,099,	2,305,	18.274,	19,523,	1 year old and above
8.438,	9,433,	1,160,	1,256,	9,622.	10,717,	Under 1 year old
24.581,	26,619,	3.259,	3,561,	27.896,	30,240,	Total of sheep
2,048,	2,001,	1,088,	849,	3.149,	2,863,	Pigs

† Including beet root. ‡ Including parsnips.

TABLE B.—*Percentage of Total Cultivated Acreage under Various Kinds of Crops, and and Number of each Kind of Live Stock to every* 100 *Acres*

	England.		Wales.		Scotland.	
	1881.	1880.	1881.	1880.	1881.	1880.
	PERCENTAGE OF TOTAL CULTIVATED ACREAGE					
Corn crops (including beans and peas)	28·2	28·4	17·3	17·3	29·5	29·6
Green crops	10·9	10·8	4·5	4·3	14·8	14·7
Bare fallow	3·0	3·1	1·1	1·1	0·4	0·5
Grass—						
Clover, &c., under rotation	10·3	10·8	11·9	12·0	30·7	30·7
Permanent pasture	47·3	46·6	65·2	65·3	24·6	24·5
Other crops	0·3	0·3	0·0	0·0	0·0	0·0
Total	100·0	100·0	100·0	100·0	100·0	100·0
	PERCENTAGE OF TOTAL ACREAGE OF CORN CROPS					
Wheat	37·9	39·3	18·7	18·8	5·3	5·3
Barley or bere	29·1	29·5	29·5	29·8	19·3	18·8
Oats	23·4	21·7	50·5	50·1	73·4	73·9
Rye	0·5	0·4	0·4	0·4	0·5	0·5
Beans	6·0	5·8	0·5	0·5	1·4	1·4
Peas	3·1	3·3	0·4	0·4	0·1	0·1
Total	100·0	100·0	100·0	100·0	100·0	100·0
	PERCENTAGE OF TOTAL ACREAGE OF GREEN CROPS					
Potatoes	13·0	12·2	34·1	32·4	26·9	26·8
Turnips and swedes	55·1	55·4	53·3	54·3	69·7	69·7
Mangold	12·7	12·6	5·9	6·4	0·3	0·3
Carrots	0·5	0·6	0·3	0·4	0·2	0·2
Cabbages, kohl-rabi, and rape	5·1	5·8	0·9	0·9	0·5	0·8
Vetches, lucerne, and any other green crop, except clover or grass	13·6	13·4	5·5	5·6	2·4	2·2
Total	100·0	100·0	100·0	100·0	100·0	100·0
	NUMBER OF EACH KIND OF LIVE STOCK TO EVERY					
Horses	4·4	4·4	4·9	4·9	4·1	4·1
Cattle	16·9	16·9	23·5	23·7	23·0	23·2
Sheep	62·4	68·4	88·6	98·2	141·3	149·3
Pigs	7·0	6·9	6·9	6·6	2·6	2·6

of the Acreage of Corn and Green Crops under the several Descriptions of such Crops, under Cultivation, in each of the Years 1881 *and* 1880.

Great Britain.		Ireland.		United Kingdom, including Isle of Man and Channel Islands.		
1881.	1880.	1881.	1880.	1881.	1880.	
UNDER VARIOUS KINDS OF CROPS IN EACH YEAR.						
27·5	27·7	11·6	11·5	22·4	22·4	Corn crops (including beans and peas)
10·9	10·8	8·3	8·1	10·1	10·0	Green crops
2·5	2·5	0·1	0·1	1·7	1·7	Bare fallow
						Grass—
13·5	13·8	13·1	12·5	13·4	13·4	Clover, &c., under rotation
45·4	45·0	65·9	66·8	52·0	52·0	Permanent pasture
0·2	0·2	1·0	1·0	0·4	0·5	Other crops
100·0	100·0	100·0	100·0	100·0	100·0	Total
UNDER EACH KIND OF CORN CROP IN EACH YEAR.						
31·7	32·8	8·7	8·4	27·9	28·7	Wheat
27·6	27·8	11·9	12·4	25·0	25·3	Barley or bere
32·8	31·5	78·4	78·2	40·4	39·3	Oats
0·5	0·5	0·4	0·4	0·5	0·4	Rye
5·0	4·8	0·6	0·6	4·2	4·1	Beans
2·4	2·6	0·0	0·0	2·0	2·2	Peas
100·0	100·0	100·0	100·0	100·0	100·0	Total
UNDER EACH KIND OF GREEN CROP IN EACH YEAR.						
16·5	15·9	67·3	65·8	30·1	29·1	Potatoes
58·0	58·2	23·3	24·3	48·7	49·2	Turnips and swedes
9·9	9·9	3·5	3·3	8·2	8·1	Mangold
0·4	0·5	0·3	0·3	0·4	0·5	Carrots
4·1	4·6	2·7	3·4	3·7	4·3	Cabbages, kohl-rabi, and rape
11·1	10·9	2·9	2·9	8·9	8·8	Vetches, lucerne, and any other green crop, except clover or grass
100·0	100·0	100·0	100·0	100·0	100·0	Total
100 ACRES UNDER CROPS, FALLOW AND GRASS.						
4·4	4·4	3·2	3·3	4·0	4·1	Horses
18·4	18·4	25·8	25·5	20·8	20·7	Cattle
76·3	82·9	21·3	23·2	58·6	63·5	Sheep
6·4	6·2	7·1	5·5	6·6	6·0	Pigs

TABLE C.—*Return of the Number and Acreage of Arable Farms in England and Wales, and of Plots of Arable Land available for Cultivation which were Unoccupied on 4th June*, 1881.

Counties.	Arable Farms.		Detached Plots of Arable Land of not less than Five Acres.		Total Acreage of Unoccupied Farms and Plots of Land.
	Number.	Total Acreage.	Number.	Total Acreage.	
		Acres.		Acres.	Acres.
Bedford	9	1,573	4	442	2,015
Berks	4	483	4	195	678
Buckingham	4	802	8	299	1,101
Cambridge	13	1,904	18	330	2,234
Chester	3	207	—	—	207
Cornwall	1	327	1	10	337
Cumberland	—	—	—	—	—
Derby	7	340	—	—	340
Devon	8	671	11	177	848
Dorset	4	572	2	122	694
Durham	—	—	—	—	—
Essex	30	4,954	5	67	5,021
Gloucester	13	1,374	17	238	1,612
Hants	7	587	1	20	607
Hereford	6	890	1	7	897
Hertford	10	2,424	10	452	2,876
Huntingdon	12	2,178	9	127	2,305
Kent	7	721	4	36	757
Lancaster	22	635	3	72	707
Leicester	7	423	8	104	527
Lincoln	16	2,202	13	373	2,575
Middlesex	2	96	1	6	102
Monmouth	6	256	6	69	325
Norfolk	7	952	4	89	1,041
Northampton	5	879	5	89	968
Northumberland	—	—	—	—	—
Nottingham	4	344	15	509	853
Oxford	4	351	—	—	351
Rutland	—	—	—	—	—
Salop	12	2,044	8	100	2,144
Somerset	3	181	3	317	498
Stafford	2	349	—	—	349

TABLE C.—*Return of the Number and Acreage of Arable Farms—Contd.*

Counties.	Arable Farms.		Detached Plots of Arable Land of not less than Five Acres.		Total Acreage of Unoccupied Farms and Plots of Land.
	Number.	Total Acreage.	Number.	Total Acreage.	
		Acres.		Acres.	Acres.
Suffolk	6	529	5	51	580
Surrey	6	207	6	113	320
Sussex	2	120	1	175	295
Warwick	13	1,391	—	—	1,391
Westmoreland	—	—	—	—	—
Wiltshire	12	3,893	—	—	3,893
Worcester	11	985	1	19	1,004
York: East Riding	2	469	2	33	502
„ North Riding including City of York	6	582	2	82	664
„ West Riding	23	374	1	6	380
Total for England	309	37,269	179	4,729	41,998
Anglesea	—	—	—	—	—
Brecon	3	274	—	—	274
Cardigan	3	28	—	—	28
Carmarthen	—	—	—	—	—
Carnarvon	—	—	—	—	—
Denbigh	2	804	—	—	804
Flint	1	120	—	—	120
Glamorgan	—	—	—	—	—
Merioneth	—	—	—	—	—
Montgomery	1	64	12	272	336
Pembroke	—	—	—	—	—
Radnor	2	257	—	—	257
Total for Wales	12	1,547	12	272	1,819
Total for England and Wales	321	38,816	191	5,001	43,817

TABLE D.—*Total Acreage under Crops, Bare Fallow, and Grass; and Acreage under Corn Land), in England, Wales, and Scotland*

	1872.	1873.	1874.	1875.	1876.
Total Acreage under—					
Crops, Bare Fallow, and Grass—	Acres.	Acres.	Acres.	Acres.	Acres.
England	23,830,197	23,893,558	24,008,368	24,112,309	24,201,622
Wales	2,635,642	2,647,080	2,678,730	2,696,143	2,712,097
Scotland	4,538,334	4,561,982	4,579,821	4,607,898	4,637,893
Total	31,004,173	31,102,620	31,266,919	31,416,350	31,551,612
Corn Crops—					
England	7,576,698	7,501,713	7,505,076	7,528,543	7,288,186
Wales	561,916	536,786	516,001	512,178	498,968
Scotland	1,434,937	1,420,429	1,410,413	1,410,929	1,407,515
Total	9,573,551	9,458,928	9,431,490	9,451,650	9,194,669
Green Crops—					
England	2,778,925	2,749,318	2,764,182	2,848,473	2,752,434
Wales	136,065	133,232	131,956	131,085	129,466
Scotland	701,393	693,936	685,132	684,549	689,974
Total	3,616,383	3,576,486	3,581,270	3,664,107	3,571,874
Clover, &c.—					
England	2,822,392	2,678,311	2,618,655	2,608,106	2,787,103
Wales	370,850	360,555	365,078	360,596	360,159
Scotland	1,320,209	1,327,952	1,357,009	1,385,369	1,393,011
Total	4,513,451	4,366,818	4,340,742	4,354,071	4,540,273
Total Acreage of—					
Arable Land—					
England	13,839,369	13,655,744	13,570,219	13,576,026	13,512,993
Wales	1,103,758	1,065,495	1,045,188	1,029,830	1,014,151
Scotland	3,485,440	3,465,452	3,473,500	3,497,873	3,508,524
Total	18,428,567	18,186,691	18,088,907	18,103,729	18,035,668
Permanent Pasture—					
England	9,990,828	10,237,814	10,438,149	10,536,283	10,688,629
Wales	1,531,884	1,581,585	1,633,542	1,666,313	1,697,946
Scotland	1,052,894	1,096,530	1,106,321	1,110,025	1,129,369
Total	12,575,606	12,915,929	13,178,012	13,312,621	13,515,944

Crops, Green Crops, Clover, &c., and Permanent Pasture (exclusive of Heath and Mountain in each Year from 1872 *to* 1881 *inclusive.*

1877.	1878.	1879.	1880.	1881.	
					Total Acreage under—
Acres.	Acres.	Acres.	Acres.	Acres.	Crops, Bare Fallow, and Grass—
24,312,033	24,417,815	24,503,882	24,596,266	24,663,937	England
2,731,159	2,746,511	2,758,743	2,767,516	2,784,963	Wales
4,669,221	4,690,206	4,713,159	4,738,127	4,762,612	Scotland
31,712,413	31,854,532	31,975,784	32,101,909	32,211,512	Total
					Corn Crops—
7,302,772	7,274,811	7,113,122	6,993,699	6,960,958	England
494,678	491,868	481,577	478,116	482,315	Wales
1,412,679	1,400,967	1,390,535	1,403,887	1,404,703	Scotland
9,210,129	9,167,646	8,985,234	8,875,702	8,847,976	Total
					Green Crops—
2,759,174	2,680,983	2,736,488	2,659,134	2,681,953	England
129,535	122,708	126,951	120,073	124,550	Wales
696,137	687,319	690,879	697,446	704,065	Scotland
3,584,846	3,491,010	3,554,318	3,476,653	3,510,568	Total
					Clover, &c.—
2,737,387	2,785,097	2,674,949	2,646,241	2,548,952	England
351,797	356,486	347,473	332,353	331,401	Wales
1,405,032	1,431,524	1,450,951	1,455,745	1,461,932	Scotland
4,494,216	4,573,107	4,473,373	4,434,339	4,342,285	Total
					Total Acreage of—
					Arable Land—
13,454,017	13,408,235	13,270,356	13,134,410	13,008,112	England
998,876	998,310	984,932	961,766	969,550	Wales
3,531,165	3,536,691	3,553,772	3,578,774	3,590,453	Scotland
17,984,058	17,943,236	17,809,060	17,674,950	17,568,115	Total
					Permanent Pasture—
10,858,016	11,009,580	11,233,526	11,461,856	11,655,825	England
1,732,283	1,748,201	1,773,811	1,805,750	1,815,413	Wales
1,138,056	1,153,515	1,159,387	1,159,353	1,172,159	Scotland
13,728,355	13,911,296	14,166,724	14,426,959	14,643,397	Total

TABLE E.—*Summary of Total Acreage under each Principal Crop, and of the Number*

		1872.	1873.	1874.	1875.	1876.
Principal Crops.		Acres.	Acres.	Acres.	Acres	Acres.
Wheat....	England	3,336,888	3,252,802	3,391,440	3,128,547	2,823,342
	Wales	126,367	116,852	117,869	111,797	94,423
	Scotland	135,702	120,726	120,991	102,137	78,192
	Great Britain....	3,598,957	3,490,380	3,630,300	3,342,481	2,995,957
Barley or Bere	England	1,896,403	1,926,183	1,889,722	2,090,423	2,109,265
	Wales	168,014	163,613	152,425	154,444	153,647
	Scotland	251,915	246,117	245,840	264,834	270,197
	Great Britain...	2,316,332	2,335,913	2,287,987	2,509,701	2,533,109
Oats........	England	1,442,075	1,419,128	1,356,739	1,421,951	1,534.249
	Wales	256,074	244,893	235,621	237,170	242,417
	Scotland...........	1,007,688	1,012,206	1,004,024	1,004,888	1,021,764
	Great Britain...	2,705,837	2,676.227	2,596,384	2,664,009	2,798.430
Potatoes	England	339,056	309,419	314,571	320,477	305.429
	Wales	48,417	44,936	45,379	44,505	42,581
	Scotland	176,615	160,327	160,480	157,671	154,709
	Great Britain....	564,088	514,682	520,430	522,653	502,719
Turnips and Swedes	England...........	1,512,496	1,540,307	1,560,857	1,569,049	1,561,116
	Wales................	69,185	70,821	70,843	70,326	72,049
	Scotland	501,826	510,780	501,636	503,323	512,408
	Great Britain....	2,083,507	2,121,908	2,133,336	2,142,698	2,145,573
Clover, &c.,under Rotation	England	2,822,392	2,678,311	2,618,655	2,608,106	2,787,103
	Wales	370,850	360,555	365,078	360,596	360,159
	Scotland	1,320,209	1,327,952	1,357,009	1,385,369	1,393,011
	Great Britain....	4,513,451	4,366,818	4,340,742	4,354,071	4,540,273
Live Stock.		No.	No.	No.	No.	No.
Cattle	England...........	3,901,663	4,173,635	4,305,440	4,218,470	4,076,410
	Wales..............	602,738	642,857	665,105	651,274	636,644
	Scotland...........	1,120,593	1,148,057	1,154,846	1,143,080	1,131,087
	Great Britain....	5,624,994	5,964,549	6,125,491	6,012,824	5,844,141
Sheep	England	17,912,904	19,169,851	19,859,758	19,114,634	18,320,091
	Wales	2,867,144	2,966,862	3,064,696	2,951,810	2,873,141
	Scotland	7,141,459	7,290,922	7,389,487	7,100,994	6,989,719
	Great Britain ...	27,921,507	29,427,635	30,313,941	29,167,438	28,182,951
Pigs*	England	2,347,512	2,141,417	2,058,781	1,875,357	1,924,033
	Wales	238,317	211,174	213,754	203,348	215,488
	Scotland...........	185,920	147,668	150,297	151,213	154,099
	Great Britain....	2,771,749	2,500,259	2,422,832	2,229,918	2,293,620

* Exclusive of those kept in towns and by

of Live Stock returned in Great Britain, in each Year from 1872 *to* 1881 *inclusive.*

1877.	1878.	1879.	1880.	1881.		
Acres.	Acres.	Acres.	Acres.	Acres.	*Principal Crops.*	
2,987,129	3,041,241	2,718,992	2,745,733	2,641,045	England	Wheat
100,226	101,813	94,639	89,729	90,026	Wales	
81,185	75,363	76,613	73,976	74,738	Scotland	
3,168,540	3,218,417	2,890,244	2,909.438	2,805,809	Great Britain	
2,000,531	2,062,498	2,236,101	2,060,807	2,029,199	England	Barley or Bere
147.212	148,116	152,191	142,514	142,318	Wales	
269,815	259,038	278,584	264,120	270,517	Scotland	
2,417,588	2.469,652	2,667,176	2,467,441	2,412,334	Great Britain	
1,489,999	1,430,376	1,425.126	1,520,125	1,627,004	England	Oats
239,298	234,986	226,967	239,526	243,544	Wales	
1,024,882	1,033,545	1,004,535	1,037,254	1,030,727	Scotland	
2,754,179	2,698,907	2,656.628	2,796,905	2,901,275	Great Britain	
303,964	301,852	323,992	324,931	347,733	England	Potatoes
42,942	40,816	42,609	38,940	42,410	Wales	
165,565	165,763	174,743	187,061	189,161	Scotland	
512,471	508,431	541,344	550,932	579,334	Great Britian	
1,495,885	1,466,973	1,457,762	1,473,030	1,478,682	England	Turnips and Swedes
70,813	67,531	67,349	65,190	66,356	Wales	
506,757	497,356	491,964	485,987	490,604	Scotland	
2,073,455	2,031,860	2,017,075	2,024,207	2,035,642	Great Britain	
2,737,387	2,785,097	2,674,949	2,646,241	2,548,952	England	Clover, &c., under Rotation
351,797	356,486	347,473	332,353	331,401	Wales	
1,105,032	1,431,524	1,450,951	1,455,745	1,461,932	Scotland	
4,494,216	4,573,107	4,473,373	4,434,339	4,342,285	Great Britain	
No.	No.	No.	No.	No.	*Live Stock.*	
3,979,650	4,034,552	4,128,940	4,158,046	4,160,085	England	Cattle
616,209	608,189	643,815	654,714	655,345	Wales	
1,102,074	1,095,387	1,083,601	1,099,286	1,096,212	Scotland	
5,697,933	5,738,128	5,856.356	5,912,046	5,911,642	Great Britain	
18,330,377	18,444,004	18,445,522	16,828,646	15,382,856	England	Sheep
2,862,013	2,925,806	2,873.460	2,718.316	2,466,945	Wales	
6,968,774	7,036,396	6,838,098	7,072,088	6,731,252	Scotland	
28,161,164	28,406,206	28,157,080	26,619.050	24,581,053	Great Britain	
2,114,751	2,124.722	1,771,081	1,697,914	1,733,280	England	Pigs
230,720	218,337	192,757	182,003	191,792	Wales	
153,257	140,189	127,721	120.925	123,018	Scotland	
2,498,728	2,483,248	2,091,559	2,000,842	2,048,090	Great Britain	

cottagers with less than a quarter of an acre of land.

TABLE F.—*Quantities and Values of Manures Imported into the United Kingdom in each of the Years from* 1860 *to* 1880 *inclusive.*

Year.	Quantities.				Values.			
	Bones of Animals and Fish for Manure only.	Guano.	Unenumerated.	Total.	Bones of Animals and Fish for Manure only.	Guano.	Unenumerated.	Total.
	Tons.	Tons.	Tons.	Tons.	£	£	£	£
1860....	Cannot be given	141,435	5,016	—	Cannot be given	1,557,895	20,094	—
'61....	58,280	178,423	3,155	239,858	280,361	2,022,283	11,926	2,314,570
'62....	59,592	141,636	4,340	205,568	316,210	1,635,322	14,323	1,965,855
'63....	65,404	233,574	7,020	305,998	348,425	2,658,856	21.977	3,029,258
'64....	60,828	131,358	8,692	200,878	345,369	1,457,088	78,289	1,880,746
'65....	65,642	237,393	9,590	312,625	362,624	2,675,995	52,279	3,090,898
'66....	72,878	135,697	8,433	217,008	356,853	1,439,679	34,509	1,831,041
'67....	73,262	192,308	5,570	271,140	368,981	2,109,506	18,912	2,497.399
'68....	70,546	182,343	6,474	259,363	381,618	2,039,478	15,822	2,436,918
'69 ...	90,604	210,010	8,624	309,238	546,645	2,640,983	22,704	3,210,33
'70....	92,032	280,311	24,761	397,104	591,701	3,476,680	77,457	4,145,83
'71....	92,878	178,808	80,264	351,950	596,266	1,986,989	276,949	2,860,20
'72....	97,644	118,704	131,936	348,284	642,813	1,201,042	420,739	2,264,59
'73....	70,055	184,420	92,420	346,895	457,432	2,103,531	297,675	2,858,63
'74....	83,443	112,429	139,728	335,600	549,125	1,348,849	394,441	2,292,41
'75....	97,217	114,454	190,889	402,560	630,656	1,293,436	499,213	2,423,30
'76....	85,129	199,291	204,707	489,127	524,769	2,295,744	543,165	3,363,67
'77....	104,740	152,989	225,273	483,002	666,555	1,665,127	661,670	2,993,35
'78....	86,620	177,793	252,593	517,006	542,386	1,806,573	760,227	3,109,18
'79....	64,238	77,015	215,344	356,597	365,772	704,448	641,457	1,711,67
'80....	78,138	80,497	192,040	350,675	436,186	810,177	537,279	1,783,64

TABLE G.—*Population* of the United Kingdom and Value of Imports of Live Stock, Corn and Grain, and various Kinds of Dead Meat and Provisions† in each of the Years* 1861 *to* 1880, *and Proportion per Head of Population.*

Years.	Population* of the United Kingdom, Estimated at the middle of each Year.	Imports.						
		Live Cattle, Sheep, and Pigs.	Corn, Grain, and Flour.	Dead Meat and Provisions.†	Total.	Value per Head of Population.		
	No.	£	£	£	£	£	*s.*	*d.*
1861....	28,974,362	2,211.969	34,922,095	9,151,078	46,285,142	1	11	11
'62....	29,255,015	1,888,236	37,774.148	10,630,734	50,293,118	1	14	5
'63....	29.433,918	2,655,072	25.956,520	10,841.324	39.452,916	1	6	10
'64....	29,628,578	4,275,322	19,882,181	12,157,010	36,314,513	1	4	6
'65....	29,861,908	6,548,413	20,725,483	12,667,838	39,941,734	1	6	9
'66....	30,076,812	5,839,058	30,049,655	13,483,715	49,372,428	1	12	10
'67....	30,334.999	4,148,382	41,368,349	12,489,331	58,006,062	1	18	3
'68....	30,617,718	2,698,496	39,432,624	13,277,683	55.408,803	1	16	2
'69....	30,913,513	5,299,087	37,351,089	15,189,933	57,840,109	1	17	5
'70....	31,205,444	4,654,905	34.170,221	14,773,712	53,598,838	1	14	4
'71....	31,513,442	5,663,150	42,691,464	16,593,668	64,948,282	2	1	3
'72....	31,835,757	4,394,850	51,228,816	18,604,273	74.227,939	2	6	8
'73....	32,124,598	5,418,584	51,737,811	23,854.967	81,011,362	2	10	5
'74....	32,426,369	5,265,041	51,070,202	25,224,958	81,560,201	2	10	4
'75....	32,749,167	7,326,288	53,086,691	25,880,806	86,293,785	2	12	8
'76....	33,093,439	7,260,119	51,812,438	29,851,647	88,924,204	2	13	9
'77....	33,446.930	6,012,564	63.536,322	30,144,013	99 692,899	2	19	7
'78....	33,799,386	7,453,309	59,064.875	32,636,877	99,155,061	2	18	8
'79....	34,155,126	7,075,386	61,261,437	32,835,911	101,172,734	2	19	3
'80....	34,468,552	10,239,295	62,857,269	38,744,593	111,841,157	3	4	11

* Exclusive of the army, navy, and merchant seamen abroad.

† Beef, meat salted or fresh, meat preserved otherwise than by salting, pork, bacon, and hams, butter, cheese, eggs, and potatoes.

II.—*Opium in China: how many Smokers does the Foreign Drug Supply?*

THE following introductory note and tabular statements are taken from No. 4 of the 2nd special series of reports, published by order of the inspector-general of imperial maritime customs of China:—

"1.—*Opium in China: how many smokers does the foreign drug supply?*—The following pages contain the results of an inquiry instituted to answer this question.

"2.—The commissioners of customs at a score of ports along the coast and on the Yangtze were instructed by circular to make inquiry in their respective districts and draw up replies to questions appended to the circular. * * * * * In a separate table the answers to the questions will be found brought together for greater convenience. With these questions and answers to start from, an answer to the question at the head of this introductory note can be easily worked out.

"3.—In round numbers, the annual importation of foreign opium may be said to amount to 100,000 chests, or, allowing 100 catties to each chest, 10 million catties (the *catty* is the Chinese pound; one catty is equal to *one pound and a third avoirdupois*). When boiled down and converted into what is known as prepared opium, the raw drug loses about 30 per cent. in weight; accordingly, 10 million catties of the unprepared drug imported reach the hands of retailers as, say, 7 million catties of prepared opium. The catty is divided into 16 *liang* (ounces), and the *liang* into tenths, called *mace;* in 7 million catties there are therefore [7 million × 16 × 10] 1,120 million mace of prepared opium for smokers.

"4.—Before reaching the smoker, opium pays the Chinese government import duty and likin taxes amounting to, say, 100 *taels*, and is then sold at, say, 800 taels of Chinese sycee or silver [3*l.* = 10*tls.*] per 100 catties; thus the total quantity retailed, *i.e. imported*, may be said to be paid for with 56 million taels, or $\left[\frac{70.000 \times 800}{10} \times 3\right]$ 16,800,000, and one mace of prepared opium is consequently worth, say $\left[\frac{16.800{,}000l.\text{ or }4.032\text{ million pence}}{1{,}120\text{ million}}\right]$, about $3\frac{1}{2}d.$ (English).

"5.—Divided by the number of days in the year, the quantity of prepared opium smoked daily may be said to be $\left[\frac{1{,}120\text{ million}}{365}\right]$ 3,068,493 mace, and the value [3,068,493 × 3·60] 11,046,573*d.*, or 46,027*l.*

"6.—Average smokers consume 3 mace of prepared opium and spend about $10\frac{3}{4}d.$ daily. This quantity is the same as $\frac{6}{15}$ths of an ounce avoirdupois, and suffices for from 30 to 40 pipes, *i.e.*, whiffs, 'draws,' or inhalations. If we divide the total number of mace consumed daily by the total quantity each average smoker consumes daily, we find that there are in round numbers above 1 million smokers $\left[\frac{3.068{,}493}{3}\right]$ of foreign opium.

"7.—The population of China is spoken of as amounting to more than 400 million, and may fairly be pronounced to be something above 300 million. Estimating population at 300 million and opium-smokers at 1 million, and proceeding with the calculation, the result is that $3\frac{1}{3}$ in every 1,000 smoke; that is, that opium-smoking is practised by *one-third of one per cent.* of the population.

"8.—In addition to the foreign drug, there is also the native product. Reliable statistics cannot be obtained respecting the total quantity produced. Ichang, the port nearest Szechwan, the province which is generally believed to be the chief producer and chief consumer of native opium, estimates the total production of native opium at 25,000 chests annually, while another port, Ningpo, far away on the coast, estimates it at 265,000 chests. Treating all such replies as merely so many guesses, there are, it is to be remarked, two statements which may be taken as facts in this connexion; the one is that, as far as we know to-day, the native opium produced does not exceed the foreign import in quantity, and the other that native opium was known, produced, and used long before any

Europeans began the sale of the foreign drug along the coast. Granting, then, that the native product equals the foreign import, and that 100,000 chests are produced annually, and granting also that this quantity, when prepared, provides 1,120 million mace of prepared opium for the annual consumption of 1 million additional smokers, the number of opium-smokers in China may be said to be in all 2 million, or *two-thirds of one per cent.* of the population. The native product sells for one-half of the price obtained for the foreign drug, and may be estimated to be paid for with, say, 8,400,000*l.*, by 1 million smokers, who spend about $5\frac{1}{4}$*d.* apiece daily. The total amount spent by China on this luxury, produced at home and imported from abroad, is thus, say, 25 million pounds annually.

"9.—Examined in this way the result arrived at is that 200,000 chests, or almost 12,000 tons [1,680 catties = 1 ton], of unprepared opium are consumed annually by 2 million opium-smokers; that these smokers expend 25 million pounds on opium; that this is an expenditure of, say, from 5*d.* to 11*d.* daily by individual smokers; and that all the smokers amount to only two-thirds of one per cent. of the population. If more than 3 mace apiece is consumed daily by smokers, then smokers are less numerous; if less than 3 mace, then smokers are more numerous, and smoking individually less harmful. The truth is that many smoke more than 3 mace and many less, but from the statistical point of view it is safe to say that opium-smokers in China constitute simply two-thirds of one per cent. of the population. On the supposition even that the quantity of the native opium produced is ten times that of the foreign opium imported, the total will not yet suffice for the consumption of even four per cent. of the population. Four per cent. is a small percentage, but in China it means 12 millions of people. It is hardly credible, however, that native opium is produced in such quantity; but whatever the number of opium-smokers may really be—and allowing that many people smoke without injury—there must in any case be a percentage of smokers for whom the habit works nothing but evil.

"10.—Chinese who have studied the opium question are opposed to a traffic which more or less harms smokers now numbering, say, over two millions, and annually increasing; at the same time they admit that opium provides a large revenue, that the expenditure for opium and liability to the incidence of opium taxation touch an infinitesimally small percentage of the population, and that neither the finances of the State, nor the wealth of its people, nor the growth of its population, can be specially damaged by a luxury which only draws from 5*d.* to 11*d.* apiece a day from the pockets of those who indulge in it, and which is indulged in by only *two-thirds of one per cent.* of the population. They admit all this, but they do not find in either the revenue produced or the statistical demonstration of its percentage innocuousness any sufficient reason for welcoming the growth of the trade or for desisting from the attempt to check the consumption of opium.

"ROBERT HART,
Inspector-General.

"Inspectorate General of Customs,
Peking, 29th January, 1881."

Opium Smoking

Ports.	Description of Opium.	100 Catties Unprepared Drug, Yield of Prepared Opium.	100 Catties Unprepared Sell for	The Quantity of Prepared Opium yielded by 100 Catties of Unprepared Drug Sells for	Beginners Smoke Daily of Prepared Opium.	Average Smokers Consume Daily.	Heavy Smokers Consume Daily.	One Mace of Prepared Opium will fill
		Catties.	Hk. Tls.	Hk. Tls.	Mace.	Mace.	Mace.	Pipes.
Newchwang	Malwa	80	540	600	1 to 1.5	3	10 to 15	5 to 8
	Patna	53	342	572	1 ,, 1.5	3	10 ,, 15	5 ,, 8
	Benares	55	332	562	1 ., 1.5	3	10 ,, 15	5 ,, 8
	Persian	75	442	553	1 ,, 1.5	3	10 ,, 15	5 ,, 8
	Native (Chinese)	70	413	461	2	4	10 ,, 15	5 ,, 8
Tientsin	Malwa	70	527	560	5	2	6	10
	Patna	50	394	480	3	1.2	3.6	14
	Benares	50	374	464	3	1.2	3.6	14
	Persian	70	408	504	5	2	6	10
	Native (Chinese)	70	370	460	6	3	7	10
Chefoo	Malwa	70	535	546	1	3	10	10
	Patna	55	383	420	1	3	10	10
	Benares	55	380	410	1	3	10	10
	Persian	70	450	500	1	3	10	10
	Native (Chinese)	87 to 90	250 to 400	400	1	3	10	10
Ichang	Malwa	75	460	600	1	3	4	10
	Patna	60	400	540	1	2	4	10
	Native (Chinese)	65	290	330	1.5	2	6	8
Hankow	Malwa	80	552	608	2	4	15	3
	Patna	50	396	460	2	4	15	3
	Benares	40	368	424	2	4	15	3
	Persian	70	525	580	2	4	15	3
	Native (Chinese)	65	276	332	2	4	15	3
Kinkiang	Malwa	$73\frac{6}{16}$	550	630	0.5	3 to 5	10 to 20	8 to 10
	Patna	$51\frac{2}{16}$	375	510	0.5	3 ,, 5	10 ,, 20	8 ,, 10
	Benares	$51\frac{2}{16}$	375	510	0.5	3 ,, 5	10 ,, 20	8 ., 10
	Persian	$73\frac{6}{16}$	405	630	0.5	3 ,, 5	10 ,, 20	8 ,, 10
	Native (Chinese)	No Native Opium sold or prepared at Kiukiang						
Wuhu	Malwa	75	530	549	2	5	15	7
	Patna	55	330	450	1.5	4	12	6
	Benares	55	313	450	Only smoked when mixed with Patna			
	Persian	70	410	453		,,	,,	Malwa
	Native (Chinese)	75	382	482	2	5	20	7
Chinkiang	Malwa	75	538	542	1 to 2	3	5 to 6	20
	Patna	50	335	346	1 ,, 2	3	5 ,, 6	20
	Benares	75	315	324	1 ,, 2	3	5 ,, 6	20
	Persian	50	425	446	1 ,, 2	3	5 ,, 6	20
	Native (Chinese)	60	315	321	1 ,, 2	3	5 ,, 6	20
Shanghai	Malwa	70	520	575	2	5	10	6
	Patna	50	355	415	2	5	10	6
	Benares	50	333	405	2	5	10	6
	Persian	70	390	420	2	5	10	6
	Native (Chinese)	70	400	435	2	5	10	6
Ningpo	Malwa	75	510	582.36	1	3	7 to 20	10
	Patna	50	378	446.68	1	3	12 to 25	10
	Benares	50	354	422.68		Not smoked by itself		
	Persian	75	331	403.36		,,	,,	
	Native (Chinese)	60	197	240	1	3	10 to 20	10
Wênchow	Malwa	70	566	582	0.6	3	8	7
	Patna	55	378	607	0.6	3	8	7
	Native (Chinese)	60	178	278	0.6	3	8	7

* Unprepared. † Prepared. ‡ By Native craft. § From Szechwan.

Return.

One Mace of Prepared Opium costs at a Smoking Room.	Total Import last Year.	Said to be Produced Yearly in the Province of	Said to be Produced in all China Yearly.	The Habit is not easily given up after Smoking (Years or Months).	Sum Total of Taxes Leviable on 100 Catties after Payment of Import Duty.	Description of Opium.
Hk. Tls.	Piculs.	Piculs.	Piculs.		Hk. Tls.	
0.0.5.5	1,112.25	Shêngking, Kirin, and Heilung-kiang average 3,000 piculs. Owing to prohibition of cultivation, last year's production not more than 1,000 piculs	—	Old smokers find it harder than beginners. Difficult to give up if habit taken as a remedy for disease	31.3.8.0	Malwa
0.0.6.4	57.40		—		31.3.8.0	Patna
0.0.6.4	27.40		—		31.3.8.0	Benares
0.0.4.6	26		—		31.3.8.0	Persian
0.0.4.2	*Nil.*		(?)		20.9.2.0	Native (Chinese)
0.0.4.5	3,530.40	Opium not grown in Chihli to any extent	Opium dealers state that one-third of total opium consumed is grown in China	3 years	35.0.0.0	Malwa
0.0.9.0	164.20			$1\frac{8}{12}$,,	35.0.0.0	Patna
0.0.9.0	21.60			$1\frac{8}{12}$,,	35.0.0.0	Benares
0.0.4.5	290.93			3 ,,	35.0.0.0	Persian
0.0.4.0	63.38½* 23.11⅜†			2 to 3 months	(?)	Native (Chinese)
0.0.7.0	3,177.86	—	—	2 years	35.0.0.0	Malwa
0.0.8.0–0.0.9.0	44.40	—	—	2 ,,	35.0.0.0	Patna
0.0.8.0–0.0.9.0	111.75	—	—	2 ,,	35.0.0.0	Benares
0.0.6.0–0.0.7.0	92.50	—	—	2 ,,	35.0.0.0	Persian
0.0.6.0	0.48¾†	Shantung 500—600	(?)	2 ,,	(?)	Native (Chinese)
0.0.5.5	10‡	—	—	10 ,,	9.0.0.0	Malwa
0.0.5.5	1.20	—	—	10 ,,	9.0.0.0	Patna
0.0.3.5	300§	Hupeh, 2,000	25,000	15 ,,	1.5.0.0	Native (Chinese)
0.0.3.8	1,905	—	—	6 months	20.0.0.0	Malwa
0.0.4.7	218.63	—	—	6 ,,	20.0.0.0	Patna
0.0.4.7	1.20	—	—	6 ,,	20.0.0.0	Benares
0.0.3.8	17.43	—	—	6 ,,	20.0.0.0	Persian
0.0.3.5	*Nil.*	Hupeh, 2,000	98,000	6 ,,	10.0.0.0	Native (Chinese)
0.0.6.0	1,474.89	—	—	6 to 12 months	35.2.8.0	Malwa
0.0.7.0	8.40	—	—	6 ,, 12 ,,	35.2.8.0	Patna
0.0.7.0	*Nil.*	—	—	6 ,, 12 ,,	35.2.8.0	Benares
0.0.6.0	169.93	—	—	6 ,, 12 ,,	35.2.8.0	Persian
—	*Nil.*	Kiangsi, 200	77,000	—	—	Native (Chinese)
0.0.5.3	2,324.50	—	—	10 years	16.7.7.0	Malwa
0.0.7.2	2.40	—	—	5 ,,	16.7.7.0	Patna
—	*Nil.*	—	—	—	16.7.7.0	Benares
—	54	—	—	—	16.7.7.0	Persian
0.0.5.3	*Nil.*	Anhwei, almost *nil*	(?)	10 years	9.7.0.0	Native (Chinese)
0.0.4.7	8,639	—	—	3 ,,	16.0.0.0	Malwa
0.0.5.0	736.80	—	—	3 ,,	16.0.0.0	Patna
0.0.4.5	936	—	—	3 ,,	16.0.0.0	Benares
0.0.4.0	644.97	—	—	3 ,,	16.0.0.0	Persian
0.0.3.6	76.36	Kiangsu, *nil*	(?)	3 ,,	8.0.0.0	Native (Chinese)
0.0.7.0	1,803	Poppy said to be cultivated in prefecture of Hsüchow (徐 州); to what extent cannot be ascertained	—	1 to 2 years	23.2.3.8	Malwa
0.0.6.0	8,525		—	1 ,, 2 ,,	19.3.6.5	Patna
0.0.6.0	5,158		—	1 ,, 2 ,,	19.3.6.5	Benares
0.0.6.0	178		—	1 ,, 2 ,,	23.2.3.8	Persian
0.0.5.0	733		75,000	3 ,, 4 ,,	11.6.1.9	Native (Chinese)
0.0.3.5‖	6,518	—	—	2 ,, 6 months	39.2.9.0	Malwa
0.0.3.9‖	400	—	—	2 ,, 6 ,,	34.5.8.0	Patna
—	170	—	—	—	34.5.8.0	Benares
—	164	—	—	—	39.2.9.0	Persian
0.0.2.4‖	—	Chêhk'ang, 10,000	265,000	2 to 6 months	(?)	Native (Chinese)
0.0.5.2	3	—	—	2 ,, 3 years	40.0.0.0	Malwa
0.0.6.9	10.80	—	—	2 ,, 3 ,,	40.0.0.0	Patna
0.0.2.9	(?)	Chêhkiang, 8,000	(?)	2 ,, 3 ,,	(?)	Native (Chinese)

‖ When smoked on premises. If smoked out of premises, the price is: for Hk. Tls. 0.0.4.3; Patna, Hk. Tls. 0.0.5.0; Native, Hk. Tls. 0.0.3.1.

Opium Smoking

Ports.	Description of Opium.	100 Catties Unprepared Drug, Yield of Prepared Opium.	100 Catties Unprepared Sell for	The Quantity of Prepared Opium yielded by 100 Catties of Unprepared Drug Sells for	Beginners Smoke Daily of Prepared Opium.	Average Smokers Consume Daily.	Heavy Smokers Consume Daily.	One Mace of Prepared Opium will fill
		Catties.	Hk. Tls.	Hk. Tls.	Mace.	Mace.	Mace.	Pipes.
Foochow ...	Malwa	70	520	550	0.3	2	10	5 to 16
	Patna...............	50	336	366	0.3	2	10	5 „ 16
	Benares........ ...	50	325	355	0 3	2	10	5 „ 16
	Persian	68	377	407	0.3	2	10	5 „ 16
	Native (Chinese)	80	286	319	0.3	2	10	5 „ 16
Tamsui	Malwa	80	441	499	1.5	3	8	10
	Patna...............	52	326	412	1.5	3	8	10
	Benares	54	319	406	1.5	3	8	10
	Persian	77	414	474	1.5	3	8	10
	Native (Chinese)	75	182	208	—	—	—	—
Takow	Malwa	80	400	530	1	4	11	10
	Patna...............	53	350	460	1	3	8	12
	Benares	53	350	450	1	3	8	12
	Persian	76	420	520	1	4	11	10
	Native (Chinese)	—	—	—	—	—	—	—
Amoy	Malwa	50 to 80	489 to 568	495 to 653	0.5 to 2	2 to 5	8 to 12	5 to 20 A mace of opium can be used as a single filling
	Patna...............	50 „ 55	424	408 „ 450	0.5 „ 2	2 „ 5	8 „ 12	
	Benares............	50 „ 55	410	398 „ 430	0.5 „ 2	2 „ 5	8 „ 12	
	Persian	50 „ 90	406 to 460	360 „ 522	0.5 „ 2	2 „ 5	8 „ 12	
	Native (Chinese)	70 „ 80	300	375	0.5 „ 2	2 „ 5	8 „ 12	
Swatow ...	Malwa	72	570	595	0.5 to 1.5	2 „ 4	5 to 7	10 to 20
	Patna...............	53	440	465	0.5 „ 1.5	2 „ 4	5 „ 7	10 „ 20
	Benares............	57	420	415	1 „ 2	2 „ 5	6 „ 8	10 „ 20
	Persian	75	450	475	1 „ 2	2 „ 5	6 „ 8	10 „ 20
	Native (Chinese)	65	250	275	2 „ 3	4 „ 6	7 „ 12	10 „ 20
Canton	Malwa	70	580	610	1	2	8	15
	Patna...............	55	440	432	1	2	8	15
	Benares............	52	418	410	1	2	8	15
	Persian	65	400	390	1	2	8	15
	Native (Chinese)	50	380	350	1	2	8	15
Kiungchow	Malwa	75 72 70	534.76 436.58 392.73		None smoked at Kiungchow			
	Patna...............	56½	392.73	456.79	0.6	2	4	20
	Benares	51½	379.64		None smoked at Kiungchow			
	Native (Chinese)	—	—	—	—	—	—	—
Pakhoi	Benares............	57	362.75	480 87	1	2 to 3	6 to 7	22
	Native (Chinese)	60	349.09	375.27	1	2 „ 3	6 „ 7	22

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* On prepared Opium, uniform

Return—Contd.

One Mace of Prepared Opium costs at a Smoking Room.	Total Import last Year.	Said to be Produced Yearly in the Province of	Said to be Produced in all China Yearly	The Habit is not easily given up after Smoking (Years or Months).	Sum Total of Taxes Leviable on 100 Catties after Payment of Import Duty.	Description of Opium.
Hk. Tls.	Piculs.	Piculs.	Piculs.		Hk. Tls.	
0.0.5.4	1,452.60	—	—	10 years	75.8.8.0	Malwa
0.0.6.0	1,715.61	—	—	10 ,,	75.8.8.0	Patna
0.0.5.8	231.60	—	—	10 ,,	75.8.8.0	Benares
0.0.4.7	625.50	—	—	10 ,,	75.8.8.0	Persian
0.0.3.0	—	Fukien, 1,000	—	10 ,,	28.2.1.3	Native (Chinese)
—	—	—	—	10 ,,	50.0.0.0	Malwa
—	25.20	—	—	10 ,,	41.1.2.0	Patna
0.0.5.2	1,398	—	—	10 ,,	41.1.2.0	Benares
0.0.4.2	513.90	—	—	10 ,,	50.0.0.0	Persian
—	—	—	—	—	—	Native (Chinese)
0.0.4.5	19.74	—	—	—	24.3.0.0	Malwa
0.0.6.0	38.40	—	—	—	41.5.0.0	Patna
0.0.6.0	1,480.44	—	—	—	41.5.0.0	Benares
0.0.4.5	1,229.14	—	—	—	24.3.0.0	Persian
—	—	(?)	(?)	(?)	—	Native (Chinese)
0.0.5.0–0.0.6.0	1	—	—	3 years	83.1.6.0	Malwa
0.0.5.0–0.0.6.0	2,113	—	—	3 ,,	83.1.6.0	Patna
0.0.5.0–0.0.6.0	3,092	—	—	3 ,,	83.1.6.0	Benares
0.0.5.0–0.0.6.0	966	—	—	3 ,,	83.1.6.0	Persian
0.0.5.0–0.0.6.0	*Nil*	(?)	(?)	3 ,,	83.1.6.0	Native (Chinese)
0.0.5.2	4,763.87	—	—	3 ,,	37.5.9.5	Malwa
0.0.5.4	3,510.53	—	—	3 ,,	39.6.3.3	Patna
0.0.5.2	1,3[illegible]0.99	—	—	3 ,,	39.6.3.3	Benares
0.0.4.3	*Nil*	—	—	3 ,,	37.5.9.5	Persian
0.0.3.0	,,	Kwangtung, *nil*	(?)	3 ,,	(?)	Native (Chinese)
0.0.5.4	14,700	—	—	10 ,,	45.8.3.2*	Malwa
0.0.5.2		—	—	10 ,,	49.1.9.6*	Patna
0.0.4.8		—	—	10 ,,	49.1.9.6*	Benares
0.0.3.9		—	—	10 ,,	45.8.3.2*	Persian
0.0.3.9	—	Kwangtung, *nil*	12,000	10 ,,	—	Native (Chinese)
—	242.61	—	—	—	47.1.6.0	Malwa
0.0.6.2	730.99	—	—	4 months	39.6.6.0	Patna
—	—	—	—	—	—	Benares
—	—	Hainan, *nil*	(?)	—	—	Native (Chinese)
0.0.5.4	600	—	—	6 months	43.6.2.0	Benares
0.0.4.0	(?)	Kwangtung, *nil*	(?)	6 ,,	11.5.2.0	Native (Chinese)

harge of Hk. Tls. 42.5.9.0.

Hongkong Statistics.—*Table showing the Estimated Annual Import of Opium at Hongkong during each Year from* 1859 *to* 1880 *inclusive.*

Year.	Quantity Imported.	Year.	Quantity Imported.
	Chests.		Piculs.
1859	54,863[*]	1869	86,065
'60	59,405[*]	'70	95,045
'61	60,012[*]	'71	89,744
'62	75,331[*]	'72	86,385
'63	62,025[*]	'73	88,382
'64	75,128[*]	'74	91,082
		'75	84,619
	Piculs.	'76	96,985
1865	76,523	'77	94,200
'66	81,350	'78	94,899
'67	86,530	'79	107,970
'68	69,537	'80	96,839

[*] The figures for the years 1859 to 1864 are taken from a report of Mr. Commissioner Dick, dated 1st August, 1872. It is there explained that the quantity stated is that exported from India to China for the year ending 30th April, *i.e.*, the year set down here as 1859 actually represents the period from 1st May, 1859, to 30th April, 1860. No other statistics have been procurable.

III.—*Telelogues and Telegraph Messages.*

Mr. J. W. Batten writes to the President as follows:—

"When in December last I ventured to state to the Statistical Society that I thought the penny telelogue might be a fact by the end of 1881,[*] though the members applauded, I think they were sceptical. You will I know be pleased to see that we have already reached this stage, and that 20,000 messages a-day are now being conveyed by telephone at a cost of only 1*d.* each; but more than that, as I stated it would be, the telegraphic postal messages have also increased far more than in any previous year."

Comparison between United Telephone Company and Post Office—October and November, 1881—*for London.*

Post Office—total messages per day	35,000[†]
Telephone Company—total messages per day	19,500[‡]
Post Office—estimated number of words, 20	700,000
Telephone Company—estimated number of words, 100	1,950,000

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[*] See p. 27 (part 1) of this volume of the Society's *Journal.*

[†] Add estimated increase, it having been found in America that the telegrams increase wherever telephone centres are established, 30 per cent.

[‡] Actual figures, 19,522.

Comparison between United Telephone Company and Post Office—Contd.

	£
Post Office—cost of messages to public	1,750
Telephone Company—cost of messages to public	81
	d.
Post Office—cost per message to public	12·00
Telephone Company—cost per message to public	1·08
Post Office messages in 1880	9,854,566
,, per day	27,001
Telephone Company's messages in 1880	No record
Post Office, estimate, messages in 1881	12,835,000
Telephone Company, allowing present rate only of increase	10,950,000
	£
Post Office—cost to public	641,750
Telephone Company—cost to public	42,000
Total number of all telegraph companies' messages in 1866 when taken on by Post Office	5,781,989

IV.—*Statistics of Failures in the United Kingdom during the Years* 1880 *and* 1881. *By* RICHARD SEYD, F.S.S.

"The number of failures announced during the year 1881 has been 12,005, of which 1,325 are in the financial, wholesale, and manufacturing branches of trade, and 10,680 in retail trade, professional pursuits, builders, publicans, among the working classes, &c., &c.

"The failures in the wholesale trades were distributed as follows:—

	For the Year 1880.	For the Year 1881.
In London	385	313
,, Liverpool	39	47
,, Manchester	102	64
,, Lancashire	74	88
,, Yorkshire*	183	197
,, Birmingham and Midland iron district	133	145
,, Newcastle, Middlesborough, Hull and district	62	54
,, Bristol, Cardiff, Newport and Swansea	51	41
,, Provinces	328	259
,, Scotland	99	97
,, Ireland	22	20
	1,478	1,325

* Not including Middlesborough and Hull.

"The number of failures in each month during the year 1881 was as follows:—

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Wholesale	121	105	148	97	128	91	115	116	97	95	99	113
Retail	838	949	1,129	966	977	721	849	864	748	770	985	882
	959	1,054	1,277	1,063	1,105	812	964	980	845	865	1,084	995

"Distributed as follows:—

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
ENGLAND.												
Wholesale	112	94	138	89	117	82	101	105	91	91	87	101
Retail	810	902	1,078	909	926	684	801	817	701	720	940	832
SCOTLAND.												
Wholesale	9	9	9	6	9	7	13	9	2	4	9	11
Retail	16	28	34	32	29	26	28	30	24	27	30	33
IRELAND.												
Wholesale	—	2	1	2	2	2	1	2	4	—	3	1
Retail	12	19	17	25	22	11	20	17	23	23	15	17

"The various branches of commerce show the following proportions of failures:—

	For the Years			For the Years	
	1880.	1881.		1880.	1881.
Agents, commission, yarn, &c.	146	105	Glass, lead, earthenware, &c.	10	7
Bankers, joint stock banks, and foreign bankers	1*	3†	Gunpowder	—	—
			Hats and caps	22	22
Boots and shoes	130	91	Hops	6	3
Brewers	20	8	Jewellers	20	17
Cigars and tobacco	9	10	Manufacturers and merchants of woollens, worsted, elastics, silks, stuffs, hosiery	159	166
Cement and asphalte	9	—			
Coals	71	60			
Contractors	15	5	Merchants	132	133
Corn merchants, millers, &c.	30	28	Oil cloth	2	2
Cotton and colonial brokers	10	12	Provisions	35	26
Cotton spinners and manufacturers	25	25	Rope, sails, &c.	24	21
			Ship brokers and owners	48	21
Curriers, tanners, and leather merchants	22	28	Shipbuilders	7	3
			Stationers, paper, &c.	19	22
Discount and bill brokers	2	—	Sugar refiners	—	—
Wholesale chemists, druggists, &c.	18	17	Tea, coffee, and groceries	26	17
			Timber	40	36
Drysalters, oils and colours	31	46	Warehousemen and importers of foreign goods	47	42
Dyers, bleachers, and finishers	31	23			
Electro platers	7	8	Wine	72	71
Engineers, founders, iron, metal, and hardware merchants	209	218	Woolstaplers and merchants	11	13
			Woollen and cotton wastes	7	14
Financial agents	4	2	Total	1,478	1,325

* Hull District Bank, Limited, Hull.

† Southport and West Lancashire Banking Company, Limited, Southport; Whitchurch and Ellesmere Banking Company, Limited, Whitchurch; Northern Counties Banking Company, Limited, Newcastle.

"In retail trades, &c., there were:—

	For the Years			For the Years	
	1880.	1881.		1880.	1881.
Accountants	34*	18†	Butchers	338	302
Actors, artists, &c.	28	12	Cab drivers, carters, &c.	12	12
Aerated waters, gingerbeer, &c.	38	28	Cab, omnibus proprietors, livery stable keepers	74	75
Auctioneers, house agents, surveyors	141	133	Cabinet makers, upholsterers, furniture, &c., makers	146	134
Bakers	325	340			
Blacksmiths	67	64	Carpenters, joiners, wheelwrights	291	282
Boatbuilders, mast makers	13	19			
Brewers	40	37	Carriage builders	61	39
Brick makers	42	62	Carriers, cart owners	44	53
Brush and basket makers	27	33	Carvers, gilders	22	15
Builders, architects, &c.	644	605	Cattle and horse dealers	81	73

* Not members of any institute of accountants.

† One only being a member of the Institute of Accountants.

	For the Years			For the Years	
	1880.	1881.		1880.	1881.
Chemists, druggists	95	62	Millers and corn dealers	88	76
Clerks	129	118	Milliners, artificial florists, &c.	63	75
Clerks in holy orders	40	30	Miners, colliers	39	36
Coal dealers	144	159	Music sellers and publishers	20	17
Coffee and eating house keepers	41	41	Musical instrument makers and dealers	17	16
Confectioners	86	75	Newspaper proprietors	6	3
Coopers	21	11	Nurserymen, florists	49	34
Corn chandlers, hay and straw dealers	109	98	Oilmen	52	56
Cow keepers, dairymen	77	84	Opticians	4	2
Drapers, hosiers, &c.	449	374	Organists, professors of music	12	8
Dyers and cleaners	3	8	Pawnbrokers	14	9
Engineers in navy and officers in army and navy (active and retired)	25	21	Photographers	22	18
Farm bailiffs, gamekeepers	14	19	Plumbers, painters, gas fitters	250	251
Farmers	1,223	856	Potters	8	10
Fishing smack owners	26	26	Printers, stationers, engravers, &c.	138	159
Fishmongers, poulterers	121	97	Publicans	916	859
Furniture dealers, brokers	44	50	Saddlers, harness makers	59	93
Gardeners, market gardeners	56	63	Schoolmasters	64	54
General dealers, curiosities	197	223	Sewing machine dealers	4	6
Glass and earthenware dealers	64	50	Shipwrights	7	2
Greengrocers, fruiterers, potato salesmen	177	160	Shoe and boot makers and dealers	369	301
Grocers, provision dealers, &c.	1,366	1,226	Solicitors	65	63
Hair dressers, perfumers	23	37	Stockbrokers, jobbers, &c.	10	13
Hatters	38	45	Surgeons, physicians, dentists	70	71
Ironmongers, japanners, tinmen	208	151	Tailors	311	298
Jewellers, watchmakers	147	117	Timber dealers and sawyers	21	30
Journalists	5	6	Tobacconists	86	99
Labourers, bricklayers, slaters	157	157	Toy and fancy dealers	45	31
Leather dealers	19	15	Tradesmen's assistants	77	87
Lime burners	3	2	Travellers	70	65
Lodging-house keepers	58	31	Turners	13	8
Looking-glass makers, picture frames	30	23	Undertakers	11	9
Mariners	12	98	Yeast dealers	2	1
Masons	82	6	Miscellaneous	345	416
			Private persons	585	530
			Total	11,669	10,680

In the Years	Number of Failures.	Wholesale.	Retail.
1877	11,022	2,172	8,850
'78	15,059	2,643	12,416
'79	16,637	2,546	14,091
'80	13,147	1,478	11,669
'81	**12,005**	**1,325**	**10,680**

" The statistics of failures for the year 1881 again show a healthy improvement in comparison with those of the four previous years. The suspensions of the three small banks alluded to were only of local importance, and the majority of the failures in wholesale trade were among houses of minor standing. These facts, taken in connection with the remarkable increase in the clearing house returns, amounting to nearly 600 million pounds, as compared with the year 1880 (which figures, it must be borne in mind, include the large operations on the stock exchange), may be adduced as another proof that the wholesale trade of the country is in a more flourishing condition.

"In retail trade the improvement is not so marked, but the number is smaller than in any year since 1877. It is possible that a partial explanation of this less satisfactory condition of affairs may be found in the great extension of the co-operative movement, and the fact of so many of the large retail establishments having adopted a somewhat similar system, which may to some extent account for the number of failures still shown among grocers, provision dealers, drapers, &c.

V.—*Notes on Economical and Statistical Works.*

The History, Principles, and Practice of Banking. By the late J. W. Gilbart, F.R.S., formerly director and general manager of the London and Westminster Bank. New edition, revised to the present date, by A. S. Michie, deputy manager of the Royal Bank of Scotland. London. In 2 volumes. (George Bell and Sons.)

Mr. Michie has performed a great service both to men of business and to economists by publishing a new edition of Gilbart on banking. Any standard work on any subject dealing with practical affairs, necessarily needs revision from time to time, and Gilbart's works are no exception to the rule. Considering that they originally appeared nearly fifty years ago, it is a remarkable proof of their excellence that they have not been superseded by any more recent treatise; that although banking has grown with surprising rapidity since Gilbart first explained its nature to the public, his book is still, on the whole, the best of those dealing with the subject. Books on the theory of banking exist in abundance, and good books too (we need mention no names), but as an expositor of all which belongs to the business of banking, Gilbart is still without a rival. Although, however, Gilbart is still *the* authority on practical banking, his works contain much which is now out of date, and much which is unnecessary, because his advice has long ago been followed with regard to the particular points in question. Mr. Michie has performed his task with great judgment. He has omitted all unnecessary parts of Gilbart's work, and has added to it all that was needed to carry the history of banking down to our own time. Useful notes are appended to passages relating to matters in regard to which the practice of Gilbart's day has changed, in consequence of alterations in the circumstances of trade or the money market. The later chapters describe the more important events which have occurred since Mr. Gilbart's decease.

The crises of 1875 and 1878 occupy a large space in this part of the work, especially the latter, in the discussion of which Mr. Michie is, of course, very interested, seeing that it was caused by the failure of a Scotch bank. It was, indeed, obvious that the Scotch system had nothing to do with the collapse of the City of Glasgow Bank: no system whatever ought to be tested by reference to a case in which the most extreme mismanagement in the first instance, and deliberate fraud subsequently played so large a part. It would be equally unreasonable to consider that an engineer's calculations and estimates for the construction of a girder bridge were untrustworthy, the bridge having given way, when the contractor supplying the material had made use of iron of tenacities and qualities differing from those contemplated in the drawings and specifications. But one inevitable effect of the failure was that the soundness of the Scotch system has been a good deal canvassed out of Scotland, and that those who have never admitted the superiority of the system, have taken advantage of the opportunity thus presented to them to re-open the question. Apart from this, the fact that in 1879 parliament decided to enable unlimited banks to declare themselves limited, placed the Scotch joint stock banks in a somewhat difficult position; and although they eventually resolved to avail themselves of the provisions of the Act, they did so with some reluctance. The liability of the proprietors of the chartered banks again was already limited, too limited, in fact, to satisfy the able and experienced men who managed them. "These banks," says Mr. Michie, "stand in a unique position as regards all other banks in the kingdom. They were incorporated by Act of parliament or by royal charter long anterior to the Act of 1826, permitting the formation of joint stock banking companies, and, as a necessary incident of their incorporation at common law, the liability of their shareholders is limited." The Act of 1825 made it lawful for any persons who might form themselves into a corporation subsequently to the passing of the Act, to declare themselves individually as well as collectively liable for the debts of the corporation to any extent they might think proper, subject to the approval of the crown. Several of the eastern and Australian banks have made use of this permission, and their shareholders are thereby liable for double the amount of their shares. But the old chartered banks of the United Kingdom, including the Bank of England and the Bank of Ireland, as well as the Bank of Scotland, the Royal Bank of Scotland, and the British Linen Company Bank, cannot avail themselves of the Act of 1825. The Act of 1879 was also unavailable, as it was intended to meet the case of banks desirous of *reducing* their liability, and, as Mr. Michie observes, "there was no other Act under which they could go whereby they could gain the objects of that Act. But the three Scotch chartered banks, having determined to move with the times, and provide for their creditors some security beyond their existing large paid up capitals and reserve funds, last November (November, 1881) lodged private Bills in parliament for that end." The Bills were introduced in the House of Lords, but did not get beyond the second reading, owing to the opposition of the Government, which led to a lengthy correspondence between the banks and the treasury, and to the drawing up of two treasury minutes, setting forth the views of the government on the questions involved. The principal objection raised was that it was not desirable that the traditional policy of insisting on the maintenance of unlimited liability for note issues should be departed from. The other points raised, especially the objection of the chartered banks to tack the word limited on to their titles, were not of great importance, inasmuch as the banks are, by virtue of their Acts of incorporation, actually limited. As they intend to continue so, while enlarging the extent of their liability, it is not easy to see why they should feel any very strong repugnance to calling themselves limited. As a matter of fact the fight with the treasury turned almost wholly on the position which the banks desire to take up with regard to their note issues. The question need not be discussed here, and, indeed, is hardly ripe for free discussion as yet. But the utterance of the treasury is significant of the fact that the traditional policy is firmly adhered to by the present government. That policy lays it down as a principle of all legislation affecting note issues, that such issues are only to be made on terms and in ways approved by the State. It is obvious that its tendency is in the direction of suppressing all note issues but one, that of the Bank of England. Probably no responsible statesman would ever dream of carrying it out to the extent of depriving the Scotch banks of their right of issue, but further restrictions on those rights are evidently in contemplation. With Mr. Michie's remarks on the continued exclusion of the Scotch banks from the clearing house we entirely agree. It is manifestly inconvenient, and in a certain sense, unfair, that any large bank doing a considerable business in London should be thus excluded. No doubt the English banks conceive themselves to have valid grounds for their dislike to the Scotch banks which have established themselves in London, but these grounds have no relation to the question of admission to the clearing house, which ought to be decided by considerations drawn from the power and importance of the banks asking for it.

VI.—*Additions to the Library.*

Additions to the Library during the Quarter ended 31*st December*, 1881.

Donations.	By whom Presented.
Argentine Confederation—	
Estadística del Comercio Exterior y de la Navegacion Interior y Exterior correspondiente al año 1880. 486 pp., map, la. 8vo. Buenos Aires, 1881	The Statistical Bureaus
BUENOS AIRES. Boletin de la Oficina de Estadistica de la Provincia de. (Quarterly.) Año I, Núm. 3. 1881	

Donations—Contd.

Donations.	By whom Presented.
Austria and Hungary—	
Statistisches Jahrbuch für das Jahr 1879. Heft viii. Vereine, Actiengesellschaften, Bank-und Credit-institute, Registrirte Erwerbs-und Wirthschafts-Genossenschaften, Besitz-und Lastenstand der Realitäten	The Imperial Central Statistical Commission
Statistisches Jahrbuch für Ungarn 9^{ter} *Jahrgang* 1879— VII. Das Communicationewesen IX. Cultus und Unterichtswesen	The Royal Hungarian Statistical Bureau
Statistik der Öffentlichen und Privat-Volksschulen in den im Reichsrathe Vertretenen Königreichen und Ländern, 1875. xxx + 129 pp., maps, la. 4to. Wien, 1876	Dr. F. J. Mouat
Prague. Král hlavní město Praha. (Current numbers)	The Statistical Bureau
Oesterreichisch-Ungarische Sparcassen-Zeitung. (Current numbers.) Folio. Wien	The Editor
Belgium—	
Ville de Bruxelles. Bulletin Hebdomadaire de Statistique Démographique et Médicale. (Current numbers)	Dr. E. Janssens
L'Impôt sur le Revenu. Rapports et Documents présentés au Conseil Communal de la, xlvii + 283 pp., diagrams, 8vo. 1881	The Sheriff of the Burgomaster
China—	
Imperial Maritime Customs. 4to. Shanghai, 1881— I. Statistical Series— No. 2. Customs Gazette. April—June II. Special Series— No. 2. Medical Reports for half-year ended 31st March, 1881. Twenty-first issue, plates No. 4. Opium. Map	Robert Hart, Esq., Peking
Denmark. Nationalökonomisk Tidsskrift. 11^{de}, 12^{de}, Hefte, 1881. Kjöbenhavn	The Danish Political Economy Society
Egypt—	
Canal de Suez, Bulletin Trimestriel de la Navigation par le. 2^{e} année, No. 3, 1881 Bulletin Trimestriel du Commerce Extérieur. 2^{ieme} année. No. 2, 1881 Commerce Extérieur pendant 1880. 4to.	The Director-General of Statistics, Cairo
France—	
Ministère des Finances. Bulletin de Statistique et de Législation comparée. Octobre et Novembre, 1881	M. A. De Foville
Bulletin du Ministère des Travaux Publics. Septembre et Octobre, 1881	The Ministry of Public Works
Atlas de Statistique Financière. 4to. Paris, 1881	The Director of Statistics, Ministry of Finance
Chemins de Fer Français, d'Intérêt Général Documents Statisques relatifs aux annécs 1870, 1871, et 1878. 4to. Paris, 1880-81	Dr. F. J. Mouat

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France—*Contd.*	
Révue Bibliographique Universelle, Paris, 1881—	
Partie Littéraire. Octobre—Decembre	The Editor
Partie Technique. Septembre et Octobre	
L'Economiste Français. (Current numbers.) Paris	,,
Révue Géographique Internationale. Nos. 66, 67, 5ième année. Paris, 1881	,,
Société de Statistique de Paris, Journal de la. Octobre—Decembre, 1881	The Society
Germany—	
Monatshefte zur Statistik des Deutschen Reichs. September, 1881	The Imperial Statistical Office, Berlin
Preussische Statistik—	
LXII. Die Ergebnisse der Ermittelung des Ernteertrages in Preussen im 1880	The Royal Statistical Bureau of Prussia
Saxony—	
Zeitschrifts des K. Sächsischen Statistischen Bureau's. XXVI Jahrgang, 1880. Heft i und ii	The Statistical Bureau
Kalender und Statistisches Jahrbuch für das Königreich Sachsen, &c., auf das Jahr 1882. 8vo. Dresden	
BERLIN. Veröffentlichungen des Statistischen Bureaus der Stadt; Eheschliessungen, Geburten, Sterbefälle und Witterung, &c. (Current numbers)	The Statistical Bureau of Berlin
FRANKFURT-A.-M. Jahresbericht ueber die Verwaltung des Medicinalwesens die Krankenanstalten und die Oeffentlichen Gesundheitsverhaeltnisse der Stadt, XXIV Jahrgang, 1880	The Medical Society, Frankfort
Hamburg—	
Statistik des Hamburgischen Staats, Heft xi, 1881	Statistical Bureau of Customs
Handel und Schiffahrt, 1880, und Schiffahrtsverkehr von 1846 bis 1880	The Bureau of Trade Statistics
Italy—	
Annali di Statistica. Serie 2ª, vol. xxv, 1881	The Director-General of Statistics
Atti della Giunta per la Inchiesta Agraria e sulle condizioni della Classe Agricola. Vol. ii, fasc. 1, 2 e 3. 4to. Roma, 1881	
Bollettino Settimanale dei Prezzi di alcuni dei principali Prodotti Agrari. (Current numbers.) 1881	
Bollettino Mensile delle Situazioni dei Conti degli Istituti d'Emissione. Anno xii; No. 8. 1881	
Bollettino Bimestrale delle Situazioni dei Conti. Anno xii, No. 3. 1881	
Bollettino Bimestrale del Risparmio. Anno vi, No. 4. 1881	
Bollettino di Notizie Commerciali. Anno iii, Nos. 23, 24. 1881	
Bollettino Consolare. Nos. 9 e 10. 1881	
Compte-Rendu du Congrès International pour l'Amélioration du Sort des Sourds-Muets tenu à Milan, Septembre, 1880. 326 pp., 8vo.	
Dodicesima Relazione sull' Amministrazione dell' Asse Ecclesiastico perl 'anno 1880. clii + 173 pp., 4to.	

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Movimento della Navigazione Italiana nei Porti Esteri. Anno xvii, 1878. lv + 185 + 51ª pp. Roma, 1881	The Director-General of Statistics
Notizie Statistiche sulla Industria Mineraria in Italia dal 1860 al 1880. 413 pp., maps, diagrams. la. 8vo.	
Popolazione, Movimento dello Stato Civile. Anno xviii, 1879. Introduzione e Partie Seconda, la. 8vo.	Dr. F. J. Mouat
Relazione Medico-Statistica sulle Condizioni Sanitarie dell Esercito Italiano nell anno 1878. 263 pp., diagrams, la. 8vo	The Director-General of Statistics
Statistica della Istruzione Elementare, Pubblica e Privata, in Italia, anni Scolastici 1877-78 e 1878-79. lvi + 142 pp., la. 8vo.	
Statistica del Commercio Speciale. Importazione e di Esportazione, dal 1° Gennaio al 31 Agosto, e dal 1° Gennaio al 31 Ottobre, 1881. 4to.	
Strade Ferrate, Relazione Statistica sulle Costruzioni e sull' Esercizio delle, per l' anno 1880. 436 pp., 4to., maps, plates.	
Telegrafi del Regno d' Italia nell' anno 1880, Relazione Statistica sui, xc + 203 pp., map, diagram, folio.	
Istruzioni Scientifiche pei Viaggiatori raccolte da Arturo Issel. 556 pp., plates, &c., 8vo. Roma, 1881.	Dr. F. J. Mouat
Società Italiana d'Igiene, Giornale della. Anno iii, Nos. 9—11. Milano, 1881	The Society
Japan. Asiatic Society of Japan, Transactions of the. Vol. ix, part ii. August, 1881. 8vo. Yokohama	"
Netherlands. Staatkundig en Staat huishoudkundig Jaarboekje voor 1881. Diagrams. Amsterdam	The Statistical Society of the Netherlands
Portugal—	
Sociedade de Geographia de Lisboa, Boletim da. 2ª serie, No. 6. 1881	The Society
MOZAMBIQUE. Boletim da Sociedade de Geographia de. Anno 1, Nos. 3, 4, 5. 1881. 8vo. Mocambique.	"
Roumania—	
Statistica din Romania—	
Mouvement de la Population pendant 1877. 93 pp., 4to.	The Chief of the Statistical Bureau
Statistica Judiciara pe anul 1875. 106 pp., 4to. Bucharest, 1881	
Tableau Général indiquant le Commerce de la Roumanie avec les Puissances Estrangères pendant l'année 1880. 190 pp., 4to.	
Russia—	
Aperçu Général de Operations des Institutions Judiciaires et des Renseignements Statistiques sur les Prévenus pour 1874. lxx pp., 4to.	Dr. F. J. Mouat
State of the Crops in 1881. (Two Pamphlets in Russian, with a summary of general conclusions in French.) Maps, 8vo. St. Petersburg, 1881	The Department of Agriculture and Industry

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Spain—	
Carta de los Ferro-Carriles de España en 1° de Julio de 1881	TheDirector-General of Public Works, Madrid
Situacion de las Carreteras del Estado que comprende el plan general en 1° de Julio de 1881. 207 pp., la. 8vo.	
Sociedad Geográfica de Madrid, Boletín de la. Tomo xi, Nos. 3, 4, 5. 1881	The Society
Sweden and Norway—	
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HARRISON AND SONS, PRINTERS IN ORDINARY TO HER MAJESTY, ST. MARTIN'S LANE.

(Corrected to 31st December, 1881.)

STATISTICAL SOCIETY.

(FOUNDED 1834,)

SOMERSET HOUSE TERRACE (KING'S COLLEGE ENTRANCE),
STRAND, W.C., LONDON.

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LONDON:
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1882.

STATISTICAL SOCIETY.

Honorary President.

HIS ROYAL HIGHNESS THE PRINCE OF WALES, K.G.

COUNCIL AND OFFICERS.—1881-82.

Honorary Vice-Presidents.

(*having filled the Office of President*).

The Right Honourable The Earl of Shaftesbury, K.G., D.C.L.
The Right Honourable The Earl of Harrowby, K.G., D.C.L.
The Right Honourable The Lord Overstone, M.A., F.R.G.S.
The Right Honourable The Earl of Derby, D.C.L., F.R.S.
The Right Honourable The Lord Houghton, D.C.L., F.R.S.
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The Right Honourable George Shaw Lefevre, M.P.
Sir Thomas Brassey, K.C.B., M.P.

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Robert Giffen.

Assistant Secretary.

Joseph Whittall.

Bankers.—Messrs. Drummond and Co., Charing Cross, S.W., London.

AN OUTLINE OF THE OBJECTS OF

THE STATISTICAL SOCIETY.

The *Statistical Society* of London was founded, in pursuance of a recommendation of the British Association for the Advancement of Science, on the 15th of March, 1834; its object being, the careful collection, arrangement, discussion and publication, of facts bearing on and illustrating the complex relations of modern society in its social, economical, and political aspects,—especially facts which can be stated numerically and arranged in tables;—and also, to form a Statistical Library as rapidly as its funds would permit.

The Society from its inception has steadily progressed. It now possesses a valuable Library and a Reading Room; ordinary meetings are held monthly from November to June, which are well attended, and cultivate among its Fellows an active spirit of investigation: the papers read before the Society are, with an abstract of the discussions thereon, published in its *Journal*, which now consists of 44 annual volumes, and forms of itself a valuable library of reference.

The Society has originated and statistically conducted many special inquiries on subjects of economic or social interest, of which the results have been published in the *Journal* or issued separately; the latest instance being the institution of the "Howard Medal" Prize Essay.

To enable the Society to extend its sphere of useful activity, and accomplish in a yet greater degree the various ends indicated, an increase in its numbers and revenue is desirable. With the desired increase in the number of Fellows, the Society will be enabled to publish standard works on Economic Science and Statistics, especially such as are out of print or scarce, and also greatly extend its collection of Foreign works. Such a well-arranged Library for reference, as would result, does not at present exist in England, and is obviously a great *desideratum*.

The Society is cosmopolitan, and consists of Fellows and Honorary Members, forming together a body, at the present time, of between *eight and nine hundred* Members.

The Annual Subscription to the Society is *Two Guineas*, and at present there is no entrance fee. Fellows may, on joining the Society, or afterwards, compound for all future Annual Subscriptions by a payment of *Twenty Guineas*.

The Fellows of the Society receive gratuitously a copy of each part of the *Journal* as published Quarterly, and have the privilege of purchasing back numbers at a reduced rate. The Library (reference and circulating), and the Reading Room, are open daily, for the convenience of Members.

Nomination Forms and any further information will be furnished, on application to the Assistant Secretary.

CALENDAR FOR SESSION 1881-82.

1881	MON.	TUES.	WED.	THURS.	FRI.	SATUR.	SUN.	1882		TUES.	WED.	THURS.	FRI.	SATUR.	SUN.
NOV.	...	1	2	3	4	5	6	MAY	1	2	3	4	5	6	7
	7	8	9	10	11	12	13		8	9	10	11	12	13	14
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	24	25	26	27	28	29	30		23	24	25	26	27	28	29
									30	31	...	...	...	...	...

The Ordinary Meetings of the Society, at which Papers are read and discussed, are marked in the Calendar above by Black Figures.

The Chair will be taken at 7·45 *p.m., precisely.*

Visitors may attend the Ordinary Meetings on the introduction of a Fellow.

THE ANNIVERSARY MEETING

Will be held on the 27th June, 1882, at 4 p.m.

MONTHLY MEETINGS—Session 1881-82.

HELD ON THE

Third Tuesday in the Months of November—June.

Tuesday,	Nov.	15.	Tuesday,	March	21.
,,	Dec.	20.	,,	April	18.
,,	Jan.	17.	,,	May	16.
,,	Feb.	21.	,,	June	20.

The Council have reason to expect that the following Papers will, among others, be communicated to the Society in the course of the Session:—

The President's Opening Address. By James Caird, Esq., C.B., F.R.S.

"The Industrial Resources of Ireland." By G. Phillips Bevan, Esq., D.L.

"The Comparative Taxation of the Principal European Countries." By Robert Giffen, Esq.

"The Economic Progress of Italy, during the last twenty years, since the Establishment of the Italian Kingdom." By Professor Leone Levi, LL.D.

"The English Poor Rate since 1859; a sequel to the Paper read in 1860." By Frederick Purdy, Esq.

"Tonnage Statistics of the decade 1870-80; a sequel to two previous Papers on the decades 1850-60, and 1860-70." By John Glover, Esq.

"The Relative Mortality of Large and Small Hospitals; their advantages and disadvantages considered." By Henry C. Burdett, Esq.

"Two hundred and fifty years of Small Pox in England." By William A. Guy, Esq., M.D., F.R.C.P., F.R.S.

"The Relations of the English speaking populations." By Hyde Clarke, Esq.

"The Tenth Census of the United States of America." By Frederic J. Mouat, Esq., M.D., F.R.C.S.

HOWARD MEDAL, 1882.

The usual annual competition for the "Howard Medal" (1882) will take place subject to the same conditions as before. The Essays to be sent in on or before 30th June, 1882.

(*The Medal is of Bronze, having on one side a portrait of John Howard, on the other a Wheatsheaf, with suitable inscription*).

The Council have again decided to grant the sum of £20 to the writer who may gain the "Howard Medal" in November, 1882.

The subject is—

"*On the State of the Prisons of England and Wales in the Eighteenth* "*Century, and its Influence on the Severity and Spread of Small* "*Pox among the English Population at that Period. The Essays* "*also to present a Comparison of the Mortality by Small Pox* "*among the Prison Population of England and Wales during the* "*Eighteenth Century, with the Mortality from the same cause* "*among the Prison Population during the last Twenty Years.*"

The following are the principal conditions:—

The Howard Medal shall be presented in the name of the President, Council, and Fellows of the Statistical Society, to the Author of the best Essay on some subject in "*Social Statistics*," a preference being given to those topics which Howard himself investigated, and illustrated by his labours and writings.

Each Essay to bear a motto, and be accompanied by a sealed letter, marked with the like motto, and containing the name and address of the author; such letter not to be opened, except in the case of the successful Essay.

No Essay to exceed in length 150 pages (8vo.) of the *Journal of the Statistical Society*.

The Council shall, if they see fit, cause the successful Essay, or an abridgment thereof, to be read at a Meeting of the Statistical Society; and shall have the right of publishing the Essay in their *Journal* one month before its appearance in any separate independent form; this right of publication to continue till three months after the award of the Prize.

The President shall place the Medal in the hands of the successful Candidate, at the conclusion of his Annual Address, at the ordinary Meeting in November, when he shall also re-announce the subject of the Prize Essay for the following year.

Competition for this Medal shall not be limited to the Fellows of the Statistical Society, but shall be open to any competitor, providing the Essay be written in the English language.

The Council shall not award the Prize, except to the author of an Essay, in their opinion, of a sufficient standard of merit; no Essay shall be deemed to be of sufficient merit that does not set forth the facts with which it deals, in part, at least, in the language of figures and tables; and distinct references should be made to such authorities as may be quoted or referred to.

Further particulars or explanations may be obtained from the Assistant Secretary, at the Office of the Society (King's College Entrance), Strand, London, W.C.

LIST OF THE FORMER

Patron and Presidents

OF THE

STATISTICAL SOCIETY,

From its Foundation, on 15th March, 1834.

Patron.

Period.

1840-61—His Royal Highness The Prince Consort, K.G.

Presidents.

1834-36	The Most Noble the Marquis of Lansdowne, F.R.S.
1836-38	Sir Charles Lemon, Bart., M.P., F.R.S., LL.D.
1838-40	The Right Hon. the Earl Fitzwilliam, F.R.S.
1840-42	The Right Hon. the Viscount Sandon, M.P. (now Earl of Harrowby.)
1842-43	The Most Noble the Marquis of Lansdowne, K.G., F.R.S.
1843-45	The Right Hon. the Viscount Ashley, M.P. (now Earl of Shaftesbury.)
1845-47	The Right Hon. the Lord Monteagle.
1847-49	The Right Hon. the Earl Fitzwilliam, F.R.S.
1849-51	The Right Hon. the Earl of Harrowby.
1851-53	The Right Hon. the Lord Overstone.
1853-55	The Right Hon. the Earl Fitzwilliam, K.G., F.R.S.
1855-57	The Right Hon. the Earl of Harrowby, K.G., D.C.L.
1857-59	The Right Hon. the Lord Stanley, M.P. (now Earl of Derby.)
1859-61	The Right Hon. the Lord John Russell, M.P., F.R.S. (afterwards Earl Russell.)
1861-63	The Right Hon. Sir J. S. Pakington, Bart., M.P., G.C.B. (afterwards Lord Hampton.)
1863-65	Colonel W. H. Sykes, M.P., F.R.S.
1865-67	The Right Hon. the Lord Houghton, D.C.L., F.R.S.
1867-69	The Right Hon. W. E. Gladstone, M.P., D.C.L.
1869-71	W. Newmarch, Esq., F.R.S., Corr. Mem. Inst. of France.
1871-73	William Farr, Esq., M.D., C.B., D.C.L., F.R.S.
1873-75	William A. Guy, Esq., M.B., F.R.S.
1875-77	James Heywood, Esq., M.A., F.R.S., F.G.S.
1877-79	The Right Hon. George Shaw Lefevre, M.P.
1879-80	Sir Thomas Brassey, K.C.B., M.P.

LIST OF FELLOWS.

---

*Those marked thus * have compounded for their Annual Subscriptions.*

The names of Members of Council are printed in Small Capitals.

Year of Election.	
1878	Abdur Rahman, Moulvie Syud, F.R.C.I. (*Barrister-at-Law*), 42, *Taltollah-lane, Calcutta, India.*
1876	Abrahams, Israel, F.R.G.S., 56, *Russell-square, W.C.*
1870	Absolon, Eugene, 12, *Wellington-square, King's-road, Chelsea, S.W.*
1862	Acland, Henry Wentworth, M.D., F.R.S., *Oxford.*
1869	Acland, Sir Thomas Dyke, Bart., M.P., F.R.S., *Sprydoncote, Exeter ; and Athenæum Club, S.W.*
1881	Acton, John Adams, 103, *Marylebone-road, N.W.*
1879	Adam, Robert (*City Chamberlain*), *City Chambers, Edinburgh.*
1867	Addison, John, 6, *Delahay-street, Great George-street, S.W.*
1880	Aitchison, David, 5, *Pembridge-square, W.*
1876	Aitchison, William John, 2, *Princes-street, E.C.*
1879	Akers-Douglas, Aretas, M.P., J.P., *Chilston Park, Maidstone, Kent.*
1841	Aldam, William, F.R.S., *Frickley Hall, Doncaster.*
1876	Aldwinckle, Thomas Williams, 7, *East India-avenue, Leadenhall-street, E.C.*
1872	Alexander, Robert Henry, 24, *Lombard-street, E.C.*
1876	Allen, John T. R., *North Bailey, Durham.*
1875	Allen, Joseph, *St. Mildred's House, Poultry, E.C.*
1877	Allen, Joseph, 21, *Waterhouse-street, Halifax, Yorkshire.*

Year of Election.	
1878	Anderson, A. F., 131, *Mount Pleasant, Liverpool.*
1878	Anderson, Edward C., M.A., M.D., *Tow-Law, Darlington.*
1871	Anderson, Sir James, F.R.G.S., F.G.S., 66, *Old Broad-street, E.C.*
1871	Angus, R. B., *Montreal, Canada.*
1834	*Ansell, Charles, F.R.S., 92, *Cheapside, E.C.*
1881	Ansell, H. F. B., A.C.A., 25, *Bucklersbury, E.C.*
1872	*Archibald, William Frederick A., M.A., 3, *Amersham-road, Putney, S.W.*
1871	Atkinson, George W., 1, *Regent-street, Barnsley.*
1870	Avery, Thomas, *Church-road, Edgbaston, Birmingham.*
1872	*Babbage, Major-General Henry P., *Dainton House, Bromley, Kent.*
1872	*Backhouse, Edmund, *Middleton Lodge, Richmond, York.; Reform Club, S.W.*
1875	Baddeley, Samuel, *Freeland's-road, Bromley, Kent.*
1879	Baden-Powell, George S., M.A., F.R.A.S., 8, *St. George's-place, Hyde Park Corner, S.W.*
1855	BAILEY, ARTHUR HUTCHESON, F.I.A., 7, *Royal Exchange, E.C.*
1858	Baines, Sir Edward, *St. Ann's-hill, Burley, Leeds.*
1881	Baines, Jervoise Athelstane, C.S., *Secretariat, Bombay, India.*
1879	Baker, W. Mills, *Stoke Bishop, near Bristol.*
1878	Balfour, Arthur James, M.P., 4, *Carlton-gardens, S.W.*
1879	Balfour, Cecil Charles, 7, *Park-square, Regent's-park, N.W.*
1848	Balfour, General Sir George, K.C.B., M.P., D.L., 6, *Cleveland-gardens, Bayswater, W.*
1873	Balfour, Jabez Spencer, M.P., 20, *Budge-row, Cannon-street, E.C.*
1865	BALFOUR, T. GRAHAM, M.D., F.R.S. (*Vice-President*), *Coombe Lodge, Wimbledon-park, S.W.*
1879	Bamber, Edward Fisher, C.E., 67, *Shaftesbury-road, Ravenscourt-park, W.*

Year of Election.	
1877	Barbour, William B., 196, *Haverstock-hill, N.W.*
1873	Barham, Francis F., *Bank of England, Birmingham.*
1880	*Baring, Thomas Charles, M.P., *High Beach, Loughton.*
1878	Barr, John Coleman, L.R.C.P., *Cranmore Villas, Aldershot.*
1881	*Barrington-Kennett, V. B., M.A., LL.M., Cantab , 15, *Hyde Park-gardens, W.*
1878	Barry, Francis Tress, *St. Leonard's-hill,* Windsor.
1879	Barry, Frederick W., M.D. (*Sanitary Commissioner*), *Nicosia, Cyprus.*
1881	Bartlett, Robert Vincent Osborne, *Thurloxton Rectory, Taunton.*
1872	*Bass, Michael Arthur, M.P., 101, *Eaton-square, S.W.; Rangemore, Burton-on-Trent.*
1836	Bass, Michael Thomas, M.P., 101, *Eaton-square, S.W.; Rangemore, Burton-on-Trent.*
1873	Bate, George, 10, *City-road, E.C.*
1877	**BATEMAN, ALFRED EDWARD,** *Board of Trade*, 1, *Whitehall, S.W.*
1877	Battye, Richard Fawcett, M.R.C.P., 123, *St. George's-road, S.W.*
1876	Baxter, Robert, 5 *and* 6, *Victoria-street, Westminster, S.W.*
1877	Bayfield, Arthur, 32, *Temple-row, Birmingham.*
1873	*Baynes, Alfred Henry, F.R.G.S., 19, *Castle-street, Holborn, E.C.*
1871	*Baynes, William Wilberforce, F.I.A., 32, *Moorgate-street, E.C.*
1877	Beadel, William J., *Springfield Lyons, Chelmsford.*
1875	*Beardsall, Francis E. M., 64, *Cross-street, Manchester.*
1878	*Beauchamp, The Right Hon. Earl, 13, *Belgrave-square, S.W.*
1875	*Beaufort, William Morris, F.R.A.S., F.R.G.S., &c., 18, *Piccadilly, W.*
1880	Beddell, Charles, 5, *Lothbury, E.C.*
1863	Beddoe, John, B.A., M.D., F.R.S., 2, *Lansdowne-place, Clifton.*
1872	*Bedford, His Grace, the Duke of, *Woburn Abbey, Oakley, Bedford.*
1879	Beggs, Thomas, 55, *Russell-square, W.C.*

Year of Election.	
1880	Bell, Isaac Lowthian, J. P., *Rounton Grange, Northallerton, York, N.R.*
1878	Bellew, The Right Hon. Lord, *Barmeath, Dunleer, Ireland.*
1856	*Beresford-Hope, The Right Hon. A. J., M.P., D.C.L., 1, *Connaught-place, W.*
1881	Besso, Marco, *Assicurazioni Generali, Trieste.*
1879	BEVAN, G. PHILLIPS, D.L., F.G.S., *Uplands, Richmond, Surrey.*
1875	Bevan, Thomas, *Stone Park, near Dartford, Kent.*
1869	*Beverley, Henry, 27, *Theatre-road, Calcutta.*
1879	*Bickford-Smith, W., J.P., D.L., &c., *Trevarno, Helston, Cornwall.*
1866	Bikélas, Démétrius, *Athens, Greece.*
1881	Bishop, George, 131, *Powis-street, Woolwich.*
1877	Bishop, George Houlton, M.R.C.S., *Lock Hospital, Harrow-road, W.*
1877	Boddy, Evan Marlett, L.R.C.P., (*Lifford House, Dartford*), 111, *Camberwell-road, S.E.*
1873	Bogie, James, 5, *Spence-street, Newington, Edinburgh.*
1860	Bohn, Henry George, F.R.A.S., F.L.S., 18, *Henrietta-street, Covent Garden, W.C.; Twickenham.*
1877	Bolam, Harry George, *Little Ingestre, Stafford.*
1881	Bolitho, Thomas Robins, *Pendrea, near Penzance.*
1880	Bolton, Joseph C., M.P., *Carbrook, Larbert, Stirlingshire.*
1879	Borchardt, Louis, M.D., *Swinton House, Fallowfield, Manchester.*
1879	Bordman, Thomas Joseph Clarence Linden, *Victoria House, Trinity-street, Southwark, E.C.*
1875	Borthwick, The Right Hon. Lord, *Ravenstone, Whithorn, Wigtonshire, N.B.*
1881	Bourdillon, James Austin, *Larkin's-lane, Calcutta, India.*
1881	Bourinot, J. G., *Ottawa, Canada.*
1871	BOURNE, STEPHEN (*Vice-President*), *H.M. Custom House, E.C.; Abberley, Wallington, Surrey.*
1877	Boutcher, Emanuel, 12, *Oxford-square, Hyde Park, W.*
1860	Bovill, William John, Q.C., 32, *James-street, Buckingham-gate, S.W.*

Year of Election.	
1876	Bowen, Horace George, *Bank of England, E.C.*
1879	Bowley, Edwin, *Burnt Ash-hill, Lee, Kent.*
1880	Bowser, Wilfred Arthur, 72, *Bishopsgate-street Within, E.C.*,
1874	Brabrook, Edward William, F.S.A., M.R.S.L., 28, *Abingdon-street, S.W.*
1875	Braby, James, J.P., *Maybanks, Rudgwick, Sussex.*
1874	Bramley-Moore, John, D.L., *Gerrard's-cross, Bucks.*
1855	Brand, The Rt. Hon. Sir Henry Bouverie Wm., M.P., G.C.B., *Speaker's Court, House of Commons, S.W.*
1873	**Brassey, Sir Thomas**, K.C.B., M.P., (*Honorary Vice-President*), 4, *Great George-street, S.W.; and* 24, *Park-lane, W.*
1864	*Braye, The Right Hon. the Lord, 40, *Grosvenor-street; Stanford Hall, Rugby.*
1876	Brodhurst, Bernard Edward, F.R.C.S., 20, *Grosvenor-street, Grosvenor-square, W.*
1874	Broom, Andrew, A.C.A., 124, *Grove-lane, Camberwell, S.E.*
1878	Brown, Alexander Hargreaves, M.P., 12, *Grosvenor-gardens, S.W.*
1872	Brown, James Bryce, F.R.G.S., 90, *Cannon-street, E.C.; and Bromley, Kent.*
1875	Browne, Thomas Gillespie C., F.I.A., 11, *Lombard-street, E.C.*
1865	Bunce, John Thackray, *Longworth, Priory-road, Edgbaston, Birmingham.*
1880	Burdett, Henry Charles, 39, *Gloucester-road, Regent's-park, N.W.*
1873	*Burdett-Coutts, The Right Hon. the Baroness, 1, *Stratton-street, W.; and Holly Lodge, Highgate, N.*
1872	Burns, The Rev. Dawson, M.A., 52, *Parliament-street, S.W.*
1874	Burr, William, 42, *Poultry, E.C.*
1877	Burrell, Alexander.
1880	Burt, Frederick, F.R.G.S., *Woodstock, Crouch End, N.*
1880	Caine, William S., M.P., 1, *The Terrace, Clapham Common, S.W.*
1857	**Caird, James**, C.B., F.R.S., (*President*), 8, *Queen's-gate-gardens, South Kensington, S.W.; and Cassencary, Creetown, N.B.*

Year of Election.	
1880	Caird, Robert Henryson, 6, *Petersham-terrace, S.W.*
1881	Caldecott, Rev. Alfred, M.A., *St. John's College, Cambridge.*
1879	Campbell, Lord Colin M.P., *Argyll Lodge, Kensington, W., and Inverary Castle.*
1874	CAMPBELL, SIR GEORGE, K.C.S.I., M.P., D.C.L., (*Vice-President*), 17, *Southwell-gardens, South Kensington, S.W.*
1877	Campbell, George Lamb, *Market-street, Wigan.*
1879	Campbell-Colquhoun, Rev. John Erskine, *Chartwell, Westerham, Kent.*
1862	Cape, George A., 8, *Old Jewry, E.C.*
1881	Carden, Lionel Edward Gresley, (*H.M. Consul*), *Havana, Cuba, W.I.*
1872	*Carillon, J. Wilson, F.S.A., F.R.G.S., *Wormhill, Buxton, Derbyshire.*
1871	Carnac, Harry Rivett-, *Calcutta, Bengal, India.*
1876	Carphin, James Rhind, C.A., 137, *George-street, Edinburgh.*
1877	Carter, E. Harold, 33, *Waterloo-street, Birmingham.*
1848	Carter, John Bonham, *Adhurst St. Mary, Petersfield.*
1878	*Casley, Reginald Kennedy, M.D., *Northgate-street, Ipswich.*
1880	Castle, Robert, 18, *Merton-street, Oxford.*
1881	Causton, Richard Knight, M.P., 3, *Clanricarde-gardens, W.*
1858	Chadwick, David, *The Poplars, Herne Hill, Dulwich, S.E.*
1834	Chadwick, Edwin, C.B., *Park Cottage, East Sheen, Mortlake, S.W.*
1869	CHADWICK, JOHN OLDFIELD, F.R.G.S., 2, *Moorgate-street, E.C.*
1875	Challen, George Caleb, *St. Mildred's House, Poultry, E.C.*
1880	*Chamberlain, The Right Honourable Joseph, M.P., 72, *Prince's Gate, S.W.*
1873	Charlesworth, Frederic, *Widmore, Bromley, Kent.*
1851	*Cheshire, Edward, 3, *Vanbrugh Park, Blackheath, S.E.*
1877	Child, Robert Carlyle, 101, *Leadenhall-street, E.C.*
1853	Chisholm, David, F.I.A., 64, *Princes-street, Edinburgh*

Year of Election.	
1862	Christie, Chancellor Richard Copley, M.A. 2, *St. James's-square, Manchester.*
1869	CHUBB, HAMMOND, B.A., (*Secretary*), *Bickley, Kent.*
1877	Clapham, Crochley, L.R.C.P., *Muriel House, Peak Hill, Sydenham, S.E.*
1849	Clark, Gordon Wyatt, *Mickleham Hall, near Dorking, Surrey.*
1856	Clark, Sir John Forbes, Bart., *Tillypronie, Tarland, Aberdeen.*
1871	Clarke, Ebenezer, jun., 52, *Cannon-street, E.C.*
1880	Clarke, Frederick Nevill, *Oakwood, Fountain-road, Upper Norwood, S.E.*
1877	*Clarke, Henry, L.R.C.P., *H.M. Prison, Wakefield, Yorks.*
1876	Clarke, Henry Harcourt Hyde, 32, *St. George's-square, S.W.*
1856	*CLARKE, HYDE, 32, *St. George's-square, S.W.*
1869	Cleghorn, John, 3, *Spring-gardens, S.W.*
1850	*Cleveland, His Grace the Duke of, K.G., 17, *St. James's-square, S.W.*
1853	Clirehugh, William Palin, F.I.A., 66, *Cornhill, E.C.*
1877	Cobb, B. Francis, 79, *Cornhill, E.C.*
1873	Cockle, Captain George, F.R.G.S., 9, *Bolton-gardens, South Kensington, S.W.*
1877	Cohen, Lionel Louis, 9, *Hyde Park-Terrace, W.*
1838	Colebrooke, Sir Thomas Edward, Bart., M.P., 14, *South-street, W.*
1859	Coles, John, F.I.A., 39, *Throgmorton-street, E.C.*
1879	Collings, Jesse, M.P., J.P., &c., *The Woodlands. Wellington-road, Edgbaston, Birmingham.*
1874	Collins, Eugene, M.P., 38, *Porchester-terrace, Hyde Park, W.*
1877	Collins, J. Wright, J.P. (*Colonial Treasurer*), *Stanley, Falkland Islands.*
1874	Collinson, John, F.R.G.S., 13, *Palace-gate, W.*
1867	Colman, Jeremiah James, M.P., *Carrow House, Norwich.*
1878	Colomb, Captain J.C.R., R.M.A., J.P., *Droumquinna, Kenmare, Kerry.*
1879	Cooke, H. Ribton, 2, *Crosby-square, E.C.*

Year of Election.	
1879	Cooke, Isaac B., 19, *Brown's-buildings, Liverpool.*
1874	*Cookson, Faithful, F.R.G.S., 35, *Grand Parade, Brighton.*
1879	Cooper, William John, 7, *Westminster-chambers, Victoria-street, S.W.*
1843	*Copperthwaite, William Charles, *New Malton, Yorkshire.*
1874	Corbett, John, 6A, *Waterloo-place, Pall Mall, S.W.*
1873	Cork, Nathaniel, F.R.G.S., 39, *Lombard-street, E.C.*
1878	Cornish, William Robert, F.R.C.S. (*Surgeon Major*), *Sanitary Commissioner, Madras.*
1862	Courtney, Leonard Henry, M.A., M.P., 15, *Queen Anne's Gate, Westminster, S.W.*
1873	Cowper, The Hon. Henry Frederick, M.P., 4, *St. James's-square, S.W.*
1880	Cox, William John,
1880	Craig, William Young, M.P., *Palace Chambers, St. Stephen's, Westminster, S.W.*
1874	Craigie, Major Patrick George, 6, *Lyndhurst-road, Hampstead, N.W.*
1870	Craik, George Lillie, 29, *Bedford-street, Strand, W.C.*
1872	Crellin, Philip, 33, *Chancery-lane, W.C.*
1878	Crewdson, Ernest, 5, *Norfolk-street, Manchester.*
1878	Crickmay, Herbert John, *Bank of England, E.C.*
1879	Crisford, George S., F.I.A., *West of England Insurance Company, Exeter.*
1880	*Crompton-Roberts, Charles H. 16, *Belgrave-square, S.W.*
1876	Crosse, John Burton St. Croix, F.R.C.S., *Royal Military Asylum, Chelsea, S.W.*
1878	Crossman, James H., J.P., *Union Club, Trafalgar-square, S.W.*
1879	Cunningham, Charles L., M.R.C.S., &c.
1875	Cunningham, David, C.E., *Works' Office, Harbour-chambers, Dundee.*
1879	Curtis, Robert Leabon, 15 *and* 16, *Blomfield-street, E.C.*
1848	Cutcliffe, George, F.I.A., 13, *St. James's-square, S.W.*
1873	Czarnikow, Cæsar, *Mitcham, Surrey.*

Year of Election.
1869 Dalyell, The Hon. Robert Anstruther, C.S.I.,
India Office, Westminster, S.W.
1880 Danson, John Towne,
Woodland Crag, Grasmere.
1880 Danvers, Frederick Charles,
India Office, Westminster, S.W.
1873 Danvers, Juland,
India Office, Westminster, S.W.
1869 Davies, James Mair,
Chambers, 69, *West Regent-street, Glasgow.*
1874 Davies, William Henry,
51, *Tregunter-road, S.W.*
1878 Davis, James,
32, *Strand, W.C.*
1873 Dawson, James Thomas,
79, *Cornhill, E.C.*
1876 Day, William Ansell,
Lyndhurst House, Hendon, N.W.
1880 Debenham, Frank,
26, *Upper Hamilton-place, St. John's Wood, N.W.*
1879 *De Ferrieres, The Baron Du Bois, M.P., J.P.,
Bay's-hill House, Cheltenham.
1873 Delahunty, James,

1877 Deloitte, William Welch,
4, *Lothbury, E.C.*
1873 Dent, Clinton Thomas, F.R.C.S.
29, *Chesham-street, S.W.*
1873 Dent, Edward,
Fernacres, Fulmer, near Slough, Bucks
1855 *DERBY, THE RIGHT HON. THE EARL OF, P.C., F.R.S.,
(*Honorary Vice-President*),
23, *St. James's-square; and Knowsley, Prescot, Lancashire.*
1877 Dever, Henry,
4, *Lothbury, E.C.*
1877 De Worms, Baron Henry, M.P., F.R.A.S.,
H 2, *Albany, Piccadilly, W.*
1866 *Dilke, Sir Charles Wentworth, Bart., M.P., LL.M.,
76, *Sloane-street, S.W.*
18·1 Dillon, Malcolm,
18, *King William-street, E.C.*
1873 Dixon, George,
The Dales, Edgbaston, Birmingham.
1881 Dobell, R. R.,
Quebec, Canada.
1876 Dowden, Major Thomas Freeman, R.E.,
71, *Old Broad Street, E.C.*
1875 Doxsey, Rev. Isaac,
The Grove, Camberwell, S.E.

Year of Election.	
1878	Doyle, Patrick, C. E., *O'Brien Villa, 21, North-road, Entally, Calcutta.*
1875	Drimmie, David, 41, *Lower Sackville-street, Dublin.*
1872	Droop, Henry Richmond, 1*a*, *New-square, Lincoln's-inn, W.C.*
1878	Duignan, William Henry, *Walsall, Staffordshire.*
1875	Dun, John, *Parr's Banking Company, Limited, Warrington.*
1870	Duncan, James, 9, *Mincing-lane, E.C.*
1878	*DUNRAVEN, THE RIGHT HON. EARL OF, K.P., *Kenry House, Putney Vale, S.W.*
1875	Dyer, Sir Swinnerton Halliday, Bart., J.P., *Westcroft, Chobham, Woking Station, Surrey.*
1836	Edmonds, Thomas Rowe, B.A., 72, *Portsdown-road, Maida-vale, W.*
1869	Edmonds, William, *Annesley House, Southsea.*
1875	Edwards, Samuel, 4, *Eliot Park, Lewisham, S.E.*
1880	Egerton, Honourable Wilbraham, M.P., 23, *Rutland Gate, S.W.*
1872	Elliot, Sir George, Bart., *Park-street, Park-lane, W.*
1877	Ellis, Arthur, *The Park, Highgate, N.*
1873	Elsey, John Green, J.P., *Morant House, Addison-road Kensington, W.*
1873	Emanuel, Lewis, 36, *Finsbury-circus, E.C.*
1877	Emmott, W. T., *Newfield House, near Lymm, Cheshire.*
1879	Evans, Henry Jones, J.P., *Brecon Old Bank, Cardiff.*
1880	Evans, Henry Russell, (*Mayor of Newport*), *Newport, Monmouth.*
1862	Evens, John Henry, *Ericht Lodge, Dulwich, S.E.*
1834	Everett, The Hon. H. Sidney, M.A., *United States Legation, 4, Alsenstrasse, Berlin.*

Year of Election.	
1875	Eversley, The Right Hon. Viscount, D.C.L., LL.D., 114, *Eaton-square, S.W.; and Winchfield, Hants.*
1875	Faraday, Frederick J., 17, *Brazenose-street, Manchester.*
1874	Farmer, James, 6, *Porchester-gate, Hyde Park, W.*
1839	**Farr, William**, M.D., C.B., D.C.L., F.R.S., (*Honorary Vice-President*), 78, *Portsdown-road, Maida Vale, W.*
1868	Farrell, John Douglas, *Bank of England, West Branch, Burlington-gardens, W.*
1878	Farren, George, M.I.C.E., *Carnarvon.*
1878	Farrer, Thomas Henry, *Board of Trade, Whitehall, S.W.*
1876	Fearnside, Henry, M.B., F.R.C.P., 49, *Leinster-gardens, Bayswater, W.*
1864	Fellows, Frank P., 8, *The Green, Hampstead, N.W.*
1874	Ferguson, A.M., "*Ceylon Observer*" *Office, Colombo, Ceylon.*
1880	Finch, George Henry, M.P., *Burley-on-the-hill, Oakham.*
1880	Finlaison, Alexander John, F.I.A., 19, *Old Jewry, E.C.*
1880	Finlay, George, *London and N. Western Railway, Euston Station, N.W.*
1873	Fisher, Henry,
1878	Follett, Charles John, M.A., B.C.L., *H.M. Custom House, E.C.*
1875	Fordham, Edward King, J.P., *The Bury, Ashwell, Baldock, Herts.*
1841	Fortescue, The Right Honourable Earl, *Castle Hill, South Molton, Devon.*
1871	Forwood, William Bower, *Ramlet, Blundellsands, Liverpool.*
1877	*Fowler, Alderman Robert Nicholas, M.P., 50, *Cornhill, E.C.; and Elm Grove, Corsham, Wilts.*
1868	Fowler, William, M.P., 33, *Cornhill, E.C.*
1878	Foxwell, Herbert Somerton, M.A., *St. John's College, Cambridge.*
1879	Francis, George Edward, *Staunton Coleford, Gloucestershire.*
1844	*Freeland, Humphrey William, J.P., *Athenæum Club, S.W.; and Chichester.*
1876	Freeman, Joseph, 46, *Queen Victoria-street, E.C.*

Year of Election.	
1876	Freeman, T. Kyffin, *c/o R. Scarlett, Esq., 9, King Edward-street, E.C.*
1878	Fuller, W. Palmer, 50, *Gresham-street, E.C.*
1879	Gairdner, Charles, *Broom, Newton Mearns, Renfrewshire.*
1881	Gale, James Thomas, 10, *Kersley-street, Battersea-park, S.W.*
1852	Galsworthy, Edwin Henry, J.P., F.I.A., 18, *Park-crescent, Portland-place, W.*
1873	*Galton, Capt. Douglas, R.E., C.B., F.R.S., 12, *Chester-street, Grosvenor-place, S.W.*
1860	Galton, Francis, F.R.S., F.R.G.S., 42, *Rutland-gate, S.W.*
1878	Gardiner, Clement, 11, *Small-street, Bristol.*
1878	Gardiner, Henry J., *Hurstmead, Eltham, Kent.*
1881	Garnett, Frederick Brooksbank, *Board of Inland Revenue, Somerset House, W.C.*
1881	Garraway, The Hon. David G., (*Acting Treasurer*), *Grenada, West Indies.*
1879	*Gassiot, John Peter, J.P., *The Culvers, Carshalton, Surrey,*
1872	Gastrell, Major-General J. E., 7, *Lansdowne-road, Wimbledon, S.W.*
1880	*Gates, John B., jun., A.C.A., 99, *Gresham-street, E.C.*
1874	Gatliff, Charles, 8, *Finsbury-circus, E.C.*
1881	*Gatty, William Henry, *Market Harborough, Leicestershire.*
1877	Gawith, Richard Jackson, M.R.C.S., 23, *Westbourne-park-terrace, Paddington, W.*
1872	Gibb, Thomas Eccleston, 16, *Lady Margaret-road, N.W.*
1874	Gibbs, Alban George Henry, 82, *Portland-place, W.*
1871	Gibbs, George Sleight, *Derry Lodge, Darlington.*
1867	*GIFFEN, ROBERT, (*Vice-President, Secretary, and Editor of the Journal*). 44, *Pembroke-road, Kensington, W.*
1877	Gilbert, William H. Sainsbury, 9, *Old Jewry, E.C.*

Year of Election.	
1878	*Glanville, S. Goring, 238, *Lewisham High-road, S.E.*
1860	Glover, John, 88, *Bishopsgate-street Within, E.C.*
1877	Goddard, Frederick Robertson, 19, *Victoria-square, Newcastle-on-Tyne.*
1877	Good, Alfred, (7, *Poultry, E.C.*), *Downe Lodge, by Beckenham, Kent.*
1880	Goodhart, Charles E., *Langley-park, Beckenham, Kent.*
1881	Goodrich, S. G., 81, *Cheapside, E.C.*
1868	Göschen, The Right Hon. George Joachim, M.P., 69, *Portland-place, W.*
1855	*Gosset, John Jackson, *Thames Ditton, Surrey.*
1873	Gouly, Edward James, *Bullion Office, Bank of England, E.C.*
1853	Gover, William Sutton, F.I.A., 4, *Queen-street-place, Southwark Bridge, E.C.*
1876	Grahame, James, C A., 12, *St. Vincent-place, Glasgow.*
1879	Grant, Daniel, M.P., 12, *Cleveland-gardens, Bayswater, W.*
1875	Granville, Joseph Mortimer, M.D., F.G.S., &c., 18, *Welbeck-street, Cavendish-square, W.*
1847	Gray, Thomas, 34, *Fenchurch-street, E.C.*
1878	Green, Thomas Bowden, M.A., F.R.S.L., F.R.H.S., &c., 7, *New-road, Oxford.*
1877	Greene, William Thomas, M.A., M.D., *Moira House, Peckham Rye, S.E.*
1881	Greening, William H., *Braithwaite-road, Birmingham.*
1868	Griffith, Edward Clifton, 1, *Waterloo-place, S.W.*
1875	Gunn, Arthur, *Metropolitan Board of Works, Spring-gardens, S.W.*
1878	Guthrie, Charles, *London Chartered Bank of Australia, Melbourne, Victoria.*
1877	Gutteridge, Richard Sandon, M.D., 58, *Brook-street, Grosvenor-square, W.*
1839	GUY, WILLIAM AUGUSTUS, M.B., F.R.C.P., F.R.S., (*Honorary Vice-President*), 12, *Gordon-street, Gordon-square, W.C.*
1880	*Gwynne, J. Eglinton A., J.P., F.S.A., 97, *Harley-st., W.; Folkington Manor, Polegate, Sussex.*

Year of Election.	
1873	*Haggard, Frederick T., *Eltham Court-road, Eltham, Kent.*
1876	Hall, Edward Algernon, 131, *Piccadilly, W.*
1876	Hall, Edward Hepple, 73, *Elm-park, Brixton-hill, S.W.*
1869	Hall, James Macalester, *Killean House, Tayinloan, Argyleshire.*
1878	Hallett, T.G.P., M.A., *Claverton Lodge, Bath.*
1873	Hamilton, The Right Hon. Lord George Francis, M.P., 17, *Montagu-street, Portman-square, W.*
1879	HAMILTON, ROWLAND, *Oriental Club, Hanover-square, W.*
1873	Hanbury, Robert William, *Ilam Hall, Ashbourne, Derbyshire.*
1869	Hancock, William, 35, *Cornhill, E.C.*
1879	Hancock, William Neilson, LL.D., M.R.I.A., 64, *Upper Gardiner-street, Dublin.*
1875	Hankey, Ernest Alers, *Elmhyrst, Bickley-park, Kent.*
1879	Hankey, Thomson, 59, *Portland-place, W.*
1861	Hannyngton, Major-General John Caulfield, F.I.A., *India Office, Westminster, S.W.*
1876	Hansard, Luke, 68, *Lombard-street, E.C.*
1871	Harcourt, Right Hon. Sir William Vernon, Q.C., M.P., 7, *Grafton-street, Bond-street, W.*
1877	Harding, Charles, M.R.S.L., F.R.G.S., 7, *Bank Buildings, E.C.*
1877	Harold, Frederick Richard, 19, *Lambton-road, Hornsey Rise, N.*
1878	Harper, W. P.,
1868	Harris, David, *Caroline Park, Granton, Edinburgh.*
1879	Harris, Frederick, 210, *Old Kent-road, S.E.*
1834	HARROWBY, THE RIGHT HON. THE EARL OF, K.G., D.C.L., (*Honorary Vice-President*), 39, *Grosvenor-square, W.*
1870	Hartley, Fountain John. *Gloucester House*, 97, *Gazenove-road, Upper Clapton, N.*
1881	Harvey, Alfred Spalding, 67, *Lombard-street, E.C.*
1880	Hastings, George Woodyatt, M.P., *Barnard's-green House, Great Malvern.*

Year of Election	
1876	Hawkins, Alfred Templeton, F.R.G.S., 35, *Spring-gardens, Charing-cross, S.W.*
1879	Hawksley, Thomas, C.E., F.R.S., &c., 30, *Great George-street, Westminster, S.W.*
1873	Hay, James Lamb Napier,
1880	Hazell, Walter, *Fairham House, Hornsey-lane, N.*
1877	Hedley, Thomas Fenwick, 12, *Park-place, West, Sunderland.*
1870	Hefford, George V., *Rugby.*
1860	Helder, Stewart, F.I.A., 2, *Broad Sanctuary, S.W.*
1865	Hendriks, Augustus, F.I.A., 7, *Cornhill, E.C.*
1855	*HENDRIKS, FREDERICK, 1, *King William-street, E.C.*
1881	Henry, Ebenezer Walker, 27, *Belsize-crescent, N.W.*
1858	Herapath, Spencer, F.G.S., 18, *Upper Phillimore-gardens, W.*
1877	*Herbage, William, *London & South Western Bank,* 7, *Fenchurch-street, E.C.*
1881	Hewat, Archibald, F.I.A., 112, *St. Vincent-street, Glasgow.*
1834	*HEYWOOD, JAMES, M.A., F.R.S., F.G.S., (*Honorary Vice-President and Trustee*), 26, *Palace-gardens, Kensington, W.; Athenæum Club, S.W.*
1869	Hickson, Joseph, J.P., *Montreal, Canada.*
1875	Higham, Charles Daniel, F.I.A., 3, *Princes-street, Bank, E.C.*
1878	Hill, Frederick Morley, 22, *Richmond-road, Barnsbury, N.*
1873	Hime, Major H. W. L., R.A., *Woolwich.*
1859	Hincks, Hon. Sir Francis, K.C.M.G., C.B., *Montreal, Canada.*
1879	Hoare, Hamilton Noel, 37, *Fleet-street, E.C.*
1870	*Hoare, Henry, *Staplehurst, Kent.*
1834	*Hodge, William Barwick, F.I.A., 5, *Whitehall, S.W.*
1877	Holmes, Richard Henry, *Elswick-villa, Rye Hill, Newcastle-on-Tyne.*
1874	Hood, Charles, F.R.S., F.R.A.S., 10, *Leinster-gardens, Hyde-park, W.*

Year of Election.	
1871	Hooper, Augus Cameron, *Montreal, Canada.*
1874	Hooper, Rev. George D., *"Ellerslie," Sunny Gardens, Hendon, N.W.*
1879	Hooper, George Norgate, *Elmleigh, Hayne-road, Beckenham, Kent.*
1878	Hooper, Wynnard, 2, *Pembroke-gardens, Kensington, W.*
1855	HOUGHTON, THE RIGHT HON. LORD, D.C.L. F.R.S., (*Honorary Vice-President*), *Fryston Hall, Ferrybridge, Yorkshire.*
1876	Hoyle, William, *Claremont, Tottington, near Bury, Lancaster.*
1853	*Hubbard, The Right Hon. John Gellibrand, M.P., *Bank of England, E.C.*
1864	Hudson, Thomas, *Argos Villa, St. Andrew's Park, Bristol.*
1880	Huggard, Wm. R., M.A., M.D., M.R.C.P. Lond., *Sussex House, Hammersmith. W.*
1871	Hughes, Albert William, F.R.G.S., *Lyonsdown House, High-street, Hastings, Sussex.*
1878	Hughes, John, 3, *West-street, Finsbury-circus, E.C.*
1872	Humphreys, George, M.A., F.I.A., 79, *Pall Mall, S.W.*
1874	HUMPHREYS, NOEL ALGERNON, *General Register Office, Somerset House, W.C*
1873	Hunt, Sir Henry Arthur, C.B., 54, *Eccleston-square, S.W.*
1857	Hurst, George, *King's Brook House, St. Mary's, Bedford.*
1877	Huskinson, Thomas, *Epperstone Manor, Nottingham.*
1879	Hyde, Major-General Henry, R.E., *India Office, Westminster, S.W.*
1866	Ince, Henry Bret, Q.C., 18, *Old-square, Lincoln's-inn, W.C.*
1869	Ingall, Samuel, F.R.G.S., *Kent-end, Forest-hill, Kent, S.E.*
1874	*Ingall, William Thomas Fitzherbert Mackenzie, 50, *Threadneedle-street, E.C.*
1869	*Inglis, Cornelius, M.D., *Athenæum Club, S.W.*

Year of Election.

1839 Irving, John,
94, Eaton-place, S.W.
1878 Isaacs, Michal Babel,
35, Leinster-square, Bayswater, W.
1864 *Ivey, George Pearse,
Tyle Morris, Briton Ferry.

1880 *Jackson, William Lavies, M.P.,
Chapelallerton, Leeds.
1879 Jamieson, George Auldjo,
58, Melville-street, Edinburgh.
1872 Janson, Frederick Halsey, F.L.S.,
41, Finsbury-circus, E.C., and Oak Bank, Chislehurst.
1878 Jeans, James Stephen,
7, Westminster-chambers, Victoria-street, S.W.
1851 *Jellicoe, Charles, F.I.A.,
12, Cavendish-place, W.
1879 Jephson, Henry L. (*Chief Secretary's Office*),
Dublin Castle, Ireland.
1881 *Jersey, The Right Hon. the Earl of,
3, Great Stanhope-street, W.
1864 *Jevons, W. Stanley, M.A., LL.D., F.R.S.,
2, The Chesnuts, Branch-hill, Hampstead, N.W.
1881 Johnson, E. Eltham,
110, Cannon-street, E.C.
1871 Johnson, Edmund,
1, Castle-street, Holborn, E.C.
1880 Johnson, Walter,
Rounton Grange, Northallerton.
1872 Johnston, Francis J.,
Lamas, Chislehurst.
1881 Johnston, Rev. James,
Gleneve, Highland-road, Upper Norwood, S.E.
1878 Johnstone, E.,
45, Fleet-street, E.C.
1878 Jones, Henry R. Bence,
1, Whitehall, S.W.
1874 Jones, Herbert,
15, Montpelier-row, Blackheath, S.E.
1880 Jones, Robert Hesketh,
The Briars, Crystal Palace Park, Sydenham, S.E.
1877 Jones, Theodore Brooke,
Georgeville, Harrogate, Yorks.
1873 Jones, Sir Willoughby, Bart., M.A.,
Cranmer Hall, Fakenham, Norfolk.

Year of Election.	
1858	Jourdan, Francis, *Avenue House, Hampstead, N.W.*
1877	Karuth, Frank O., *City Liberal Club, Walbrook, E.C.*
1873	Kay, Duncan James, 60, *Queen's-gate, S.W.*
1877	Kealy, James William, 26. *Moorgate-street, E.C.*
1874	Kelly, Charles, M.D., *Worthing, Sussex.*
1867	Kelly, Edward Robert, A.M., 51, *Great Queen-street, Lincoln's-inn-fields, W.C.*
1878	Kelsey, Joseph Francis, *Government Statistician, Mauritius.*
1873	Kemp, Samuel, *Oriel House, Bath.*
1878	Kennedy, J. Murray, *New University Club, St. James's-street, S.W.*
1868	Kennedy, Peter, 13, *Cornwall-terrace, Regent's-park, N.W.*
1878	Kennedy, Thomas, 11, *Old Jewry-chambers, E.C.*
1874	Kennelly, David Joseph, F.R.G.S., F.R.A.S., *Devonshire Club, St. James's, S.W.*
1852	Kimberley, The Right Honourable the Earl of, M.A., P.C., 35, *Lowndes-square, S.W.*
1878	King-Harman, Edward Robert, *Rockingham, Boyle, Ireland.*
1879	Kirkwood, Anderson, LL.D., *Melville-terrace, Stirling, N.B.*
1872	Knight, John Peake, *London, Brighton, & S. Coast Rail., London Bridge, E.C.*
1878	*Kusaka, Yoshio, *First National Bank, Tokio, Japan.*
1869	Kyshe, John Benjamin, *Registrar General, Mauritius.*
1880	Lamprey, Joshua Henry, 17, *St. Anne's-park, Wandsworth, S.W.*
1875	Lane, Thomas, *Percy Cottage, Eastbourne.*
1874	Lang, George Murray, R.N., 18, *Cheyne-walk, Chelsea, S.W.*

Year of Election.

1881 Langton, Henry Currer,
Docklands, Ingatestone, Essex.

1878 Law, The Right Hon. Hugh, M.P.,
9, *Fitzwilliam-square, Dublin.*

1874 Lawes, John Bennett, LL.D., F.R.S., F.C.S.,
Rothamsted-park, St. Albans.

1877 Lawrance, Henry,
3, *Endsleigh-gardens, Euston-square, N.W.*

1878 Lawrence, Alexander M.,
17, *Thurlow-road, Hampstead, N.W.*

1873 Lawrie, James, F.R.G.S.,
Kelvin House, Quadrant-road, Highbury, N.

1873 LAWSON, ROBERT, (*Inspector-General of Army Hospitals*),
20, *Lansdowne-road, Notting-hill, W.*

1873 Lea, Thomas, M.P.,
14, *Elvaston-place, Queen's-gate, S.W.*

1880 Lee, Lionel Frederic, (*Ceylon Civil Service*),
c/o H. Austin Lee, Foreign Office, Downing-street, S.W.

1879 *Leete, Joseph,
36, *St. Mary-at-hill, E.C.* (*Eversden, S. Norwood Park.*)

1877 LEFEVRE, THE RIGHT HON. GEORGE SHAW, M.P.,
(*Honorary Vice-President*), 18, *Bryanston-square, W.*

1877 *Leggatt, Daniel, LL.D.,
5, *Raymond-buildings, Gray's-inn, W.C.*

1880 Leighton, Stanley, M.P.,
Sweeney Hall, Oswestry, Salop.

1873 Leslie, Francis Seymour,

1851 LEVI, PROFESSOR LEONE, LL.D., F.S.A.,
5, *Crown Office-row, Temple, E.C.*

1879 Levison, David,
2, *Royal Exchange-buildings, E.C.*

1867 Lewis, Charles Edward, M.P.,
8, *Old Jewry, E.C.*

1877 Lewis, John,
1, *Temple-row West, Birmingham.*

1862 Lewis, Robert,
1, *Bartholomew-lane, E.C.*

1877 Ligertwood, Thomas, M.D., F.R.C.S.,
Royal Hospital, Chelsea, S.W.

1845 *Lister, William,

1834 Lloyd, John Horatio,
100, *Lancaster-gate, Hyde-park, W.*

1878 Lloyd, Thomas,
4, *Huddlestone-road, Tufnell-park, N.*

1879 Lloyd, Wilson, F.R.G.S.,
Myvod House, Wood-green, Wednesbury.

1876 *Lornie, John Guthrie, J.P.,
Rosemount, Kirkcaldy; (*of Birnam and Pitcastle*) *N.B.*

Year of Election.	
1879	Lovegrove, Mrs., 28, *Park-street, Grosvenor-square, W.*
1880	Lovegrove, Joseph, 28, *Park-street, Grosvenor-square, W.*
1834	Lovelace, The Right Honourable the Earl of, F.R.S., *East Horsley Park, Ripley, Surrey.*
1880	Lovely, William, R.N., *Avenue House, Hammersmith, S.W.*
1879	Lowndes, William Layton, J.P., D.L., *Linley Hall, Broseley, Shropshire.*
1875	Loyd, William Jones, J.P., 16, *Grosvenor-place, S.W., and Langleybury, Watford.*
1865	LUBBOCK, SIR JOHN, BART., M.P., F.R.S., (*Trustee*), *High Elms, Farnborough, Kent.*
1878	Lucas, Thomas, J.P., 5, *Great George-street, Westminster, S.W.*
1878	Lusk, Sir Andrew, Bart., M.P. J.P., 16, *Hyde-park-street, W.*
1881	Lytton, The Right Hon. Earl of, G.C.B., G.C.S.I., 4, *Carlton House-terrace, S.W.*

1875	Mabson, Richard Rous, *Ilford, Essex.*
1873	*Macandrew, William, J.P., *Westwood, near Colchester.*
1873	McArthur, Alexander, M.P., *Raleigh Hall, Brixton, S.W.*
1873	McArthur, Alderman William, M.P., 1, *Gwydyr Houses, Brixton Rise, S.W.*
1879	MacCarthy, Rev. E. F. M., M.A., 47, *Hagley-road, Edgbaston, Birmingham.*
1878	McCheane, Robert, 90, *Palace-gardens-terrace, W.*
1867	M'Clean, Frank, 23, *Great George-street, Westminster, S.W.*
1873	McDermott, Edward, *Hill Side, Grove-park, Camberwell, S.E.*
1881	Macdonald, Charles McCay, 15, *Devonshire-terrace, Notting-hill-gate, W.*
1872	Macdonell, John, (4, *Pump-court, Temple, E.C.*), *The Myrtles, Beckenham, Kent.*
1873	*McEwen, Laurence T., *c/o R. A. McLean*, 8, *Old Jewry, E.C.*
1873	McGarel-Hogg, Colonel Sir James, Bart., M.P 17, *Grosvenor-gardens, S.W.*

Year of Election.	
1856	MacGillivray, Donald, F.I.A., 79, *Mark-lane, E.C.*
1879	MacIver, David, M.P., 34, *Lancaster-gate, W.*
1876	McKenna, Sir Joseph N., M.P., 67, *Lancaster-gate, S.W.*
1878	McKewan, William, 21, *Lombard-street, E.C.*
1881	Mackey, Rev. Canon Donald J., B.A., Cantab, *The Chantry, Balhousie, Perth, N.B.*
1870	Maclagan, David, 22, *George-street, Edinburgh.*
1876	*McLean, Robert Allan, F.R.G.S., 1, *Queen Victoria-street. E.C.*
1863	*Maclure, J. W., J.P., &c., *Carlton Club; The Home, Whalley Range, Manchester.*
1875	Macpherson, Hugh Martin, F.R.C.S., (*Inspector-General*), 14, *St. James's-square, S.W.*
1880	Maddison, Edward C., 31, *Lombard-street, E.C.*
1871	Malgarini, Frederick Lewis, F.R.S.E.,
1879	Man, Edward Garnet (*Barrister-at-Law*), 4, *Lamb-buildings, Temple, E.C., and Rangoon.*
1877	*Maple, John Blundell, 8, *Clarence-terrace, Regent's-park, N.W.*
1875	Marsh, Alfred, 85, *Gracechurch-street, E.C.*
1880	*Marshall, A., 31, *Apsley-road, Clifton, Bristol.*
1865	Martin, Frederick, 22, *Lady Margaret-road, N.W.*
1873	Martin, Henry, *National Bank of India*, 39a, *Threadneedle-street, E.C.*
1874	*MARTIN, JOHN BIDDULPH, M.A., F.Z.S., (*Secretary*), 6B, *The Albany, Piccadilly, W.*
1877	Martin, Josiah, F.I.A., 32, *New Bridge-street, E.C.*
1872	*MARTIN, RICHARD BIDDULPH, M.P., (*Treasurer*), 68, *Lombard-street, E.C., and Chislehurst.*
1876	Martin, Thomas Jaques, 84, *Collins-street West, Melbourne, Victoria.*
1879	Martin, Waldyve A. Hamilton, *The Elms, Coates, Cirencester.*
1875	*Mathers, John Shackleton, *Hanover House, Leeds, Yorkshire.*
1878	Maughan, Joseph Henry, A.I.S., 9, *New-street, Great Grimsby.*
1870	Maxse, Rear-Admiral Frederick A., *Herm House, Upperton-road, Eastbourne.*

Year of Election.

1874 May, Frank,
Bank of England, Threadneedle-street, E.C.

1853 *Meikle, James, F.I.A.,
6, *St. Andrew's-square, Edinburgh.*

1878 Meldon, Charles Henry, M.P., Q.C., LL.D.,
107, *Jermyn-street, S.W.*

1880 Menzies, R. Stewart,
Hallyburton, Coupar-Angus, N.B.

1878 Merrick, Alfred Benjamin,
6, *Cotham-parade, Bristol.*

1861 Messent, John, F.I.A.,
429, *West Strand, W.C.*

1877 Metcalfe, Richard,
Priessnitz House, Paddington-green, N.W.

1881 Meyer, Robert Alexander,
4, *Westminster Chambers, S.W.*

1877 Michael, William H., Q.C.,
38, *Parliament-street, S.W.*

1875 Mildmay, Henry Bingham, J P.,
8, *Bishopsgate-street Within, E.C.*

1873 Millar, William Henry,
Cleveland Lodge, New Park-road, Brixton-hill, S.W.

1877 Miller, Robert Ferguson,
Ramsden-square, Barrow-in-Furness.

1879 Miller, William,
55, *Lancaster-gate, W.*

1878 Mills, Sir Charles Henry, Bart., M.P.,
Camelford House, Park-lane, W.

1878 Mitchell, James, J.P.,
33, *Ennismore-gardens, S.W.*

1874 *Mocatta, Frederick D., F.R.G.S.,
9, *Connaught-place, W.*

1878 Moffat, Robert J.,
The Chesnuts, Great Shelford, Cambridgeshire.

1879 Moore, Alfred, C.E.,
5, *Clarence-street, Manchester.*

1874 Moore, Charles Rendall,
67, *Montpelier-road, Peckham, S.E.*

1877 Moore, Edward,
3, *Crosby-square, E.C.*

1878 *Moore, John Byers Gunning,
Loymount, Cookstown, Ireland.

1880 More, Robert Jasper,
Linley Hall, Bishopscastle, Salop.

1872 Morgan, Octavius Vaughan, J.P.,
13, *Boltons, South Kensington, S.W.*

1881 Morison, Arthur Duff,
27, *Great George-street, Westminster, S.W.*

1873 *Morley, Samuel, M.P.,
18, *Wood-street, E.C.*; 34, *Grosvenor-street, W.*

Year of Election.
1874 *Morris, James, M.D., F.R.C.S.,
13, *Somers-place, Hyde-park-square, W.*
1877 Mort, William,
1, *Stanley-crescent, Notting-hill, W.*
1873 Morton, James,
Balclutha, Greenock, N.B.
1847 ***Mouat, Frederic J.**, M.D., F.R.C.S. (*Foreign Secretary*),
12, *Durham-villas, Kensington, W.*
1857 *Mount-Temple, The Right Hon. Lord,
15, *Great Stanhope-street, W.*
1878 Muir, Hugh Brown,
26, *Old Broad-street, E.C.*
1880 Mulhall, Michael G.,
81, *Park-street, Grosvenor-square, W.*
1877 Mullen, Robert Gordon,
Fairview, Widmore-road, Bromley, Kent.
1878 *Mundella, The Right Hon. Anthony John, M.P.,
16, *Elvaston-place, Queens-gate, S.W.*
1878 Murray, Adam,
104, *King-street, Manchester.*
1879 Murray, James Charles,
Calcutta.

1879 Nalder, Francis Henry,
Findern Lodge, Spring-grove, Isleworth.
1865 Nasmith, David,
4, *Garden-court, Temple, E.C.*
1878 Nathan, Henry,
110, *Portsdown-road, Maida-vale, N.*
1879 Neil, William M.,
64, *Seymour-street, Portman-square, W.*
1854 Neild, Alfred,
Mayfield Print Works, Manchester.
1869 **Neison, Francis G. P.**,
93, *Adelaide-road, South Hampstead, N.W.*
1879 **Nepean, Evan Colville**,
War Office, Pall Mall, S.W.
1877 Nevill, Charles Henry,
11, *Queen Victoria-street, E.C.*
1862 Newbatt, Benjamin, F.I.A., F.R.G.S.,
13, *St. James's-square, S.W.*
1881 Newcome, Frederick N.,
7, *Bayley-street, Bedford-square, W.C.*

Year of Election.	
1879	Newdegate, Charles Newdigate, M.P., D.C.L., 27, *Lowndes-street, Belgrave-square, S.W.*
1847	*NEWMARCH, WILLIAM, F.R.S., F.I.A., (*Trustee and Honorary Vice-President*), *Brook House, Green Lanes, Addlestone, Weybridge.*
1878	Newport, Henry R., 1, *Whitehall, S.W.*
1878	Newton, John, *Ash Lea, Croydon-road, Penge, S.E*
1878	Nicholson, J. S., *Trinity College, Cambridge.*
1858	Nightingale, Miss Florence, 10, *South-street, Park-lane, W.*
1877	Nix, Samuel Dyer, F.C.A., 3, *King-street, Cheapside, E.C.*
1871	*Noble, Benjamin, *North-Eastern Bank, Newcastle-on-Tyne.*
1870	Noble, John, 42, *Burghley-road, Highgate-road, N.W.*
1834	Norman, George Warde, J.P., *Bromley, Kent.*
1877	Norman, General, Sir Henry Wylie, K.C.B., 27, *Lexham-gardens, Cromwell-road, W.*
1878	Northbrook, The Right Hon. the Earl of, G.C.S.I., D.C.L., 4, *Hamilton-place, Piccadilly, W.*
1878	Notthaftt, Theodor, *c/o Discount Bank, St. Petersburg.*
1880	Oakeshott, George Alfred, *Secretary's Office, General Post Office, E.C.*
1880	*Oelsner, Isidor, *Highfield, Westwood-park, Forest-hill, S.E.*
1862	Ogbourne, Charles Henry, 29, *Dalhousie-square, Calcutta.*
1878	O'Hagan, The Right Hon. Lord, 19, *Chesham-place, S.W.*
1878	Oppenheim, Henry, 17, *Park-lane, Piccadilly, W.*
1876	Orange, William, M.D., *Broadmoor, Wokingham, Berks.*
1877	Ormond, Richard, *Belgrave-terrace, Newcastle-on-Tyne.*
1874	Overall, William Henry, F.S.A., *Librarian, Guildhall, E.C. (Representing the Library Committee of the Corporation of the City of London.)*

Year of Election.

1834 *OVERSTONE, THE RIGHT HONOURABLE LORD, F.R.G.S.,
(*Honorary Vice-President*),
2, *Carlton-gardens, S.W.*

1866 *Palgrave, Robert Harry Inglis, J.P.,
11, *Britannia-terrace, Great Yarmouth, Norfolk.*
1879 PALMER, GEORGE, M.P., (*The Acacias, Reading*),
68, *Grosvenor-street, W.*
1878 Park, David Francis, C.A., F.F.A., A.I.A.,
17, *Change-alley, Cornhill, E.C.*
1880 Parkin, William,
The Mount, Sheffield.
1881 Parr, Samuel,
7, *Finsbury-square, E.C.*
1878 Parry, Thomas,
Grafton-place, Ashton-under-Lyne.
1879 Partridge, Henry Francis, L.D.S., &c.,
Sussex House, Sussex-place, South Kensington, S.W.
1869 PATTERSON, ROBERT HOGARTH,
22, *Wingate-road, Hammersmith, W.*
1877 Paul, Henry Moncreiff,
12, *Lansdowne-crescent, Notting Hill, W.*
1878 Paulin, David,
31, *Stafford-street, Edinburgh.*
1879 Payn, Howard,
21, *Gilbert-street, Grosvenor-square, W.*
1877 Payne, William Percy,
Holmesdale, The Park, Nottingham.
1873 Pearce, Charles William,
1, *Sherborne-lane, E.C.*
1876 Pearson, Edwin James,
Board of Trade, Whitehall, S.W.
1857 *Pearson, Professor C. H.,
c/o John Pearson, Q.C., 75, *Onslow-square, S.W.*
1880 *Pease, Joseph Whitwell, M.P.,
24, *Kensington-palace-gardens, W.*
1876 *Peek, Sir Henry William, Bart., M.P.,
Wimbledon House, S.W.
1878 Pellereau, Etienne,
Substitute Procureur and Advocate-General, Mauritius.
1880 Pender, John, M.P., (66, *Old Broad-street, E.C.*)
18, *Arlington-street, S.W.*
1871 Pennington, Frederick, M.P.,
17, *Hyde Park-terrace, W.*
1874 Pepys, The Hon. George,

Year of Election.	
1881	Perring, R. B., *Queen's Chambers, John Dalton-street, Manchester.*
1874	Phené, John Samuel, LL.D., F.S.A., 5, *Carlton-terrace, Oakley-street, S.W.*
1879	Philips, Herbert, 35, *Church-street, Manchester.*
1877	Phillipps, Henry Matthews, 41, *Seething-lane, E.C.*
1835	*Phillips, Sir George Richard, Bart., 22, *Hill-street, Berkeley-square, W.*
1859	Phillips, Henry James, 4, *Ludgate-hill, E.C.*
1877	Phillips, John Walter, M.B., L.R.C.S., 30, *Stanley-street, West Melbourne, Victoria.*
1878	Phipps, Pickering, M.P., 6, *Collingtree Grange, Northampton.*
1871	*Pickering, John, F.R.G.S., F.S.A., *The Abnalls, Mount Preston, Leeds.*
1873	Pickstone, William, *Maesmynan Hall, Holywell.*
1878	*Pim, Joseph Todhunter, *Greenbank, Monkstown, County Dublin.*
1838	*Pinckard, George Henry, J.P., F.I.A., 12, *Grove-road, St. John's-wood, N.W.*
1879	Pixley, Francis William, 15, *Coleman-street, E.C.*
1881	Planck, Surgeon-Major Charles, M.R.C.S., *Allahabad, India.*
1861	Plowden, W. Chicele (*Census Commissioner for India*), 70, *The Home Office, Calcutta.*
1869	POCHIN, HENRY DAVIS, *Bodnant Hall, Conway.*
1874	Ponsonby, The Hon. Frederick George Brabazon, M.A., 3, *Mount-street, Grosvenor-square, W.*
1879	Poole, William, *Newton Avenue, Longsight, Manchester.*
1860	Potter, Edmund, F.R.S., 64, *Queen's-gate, South Kensington, S.W.*
1879	*Powell, Francis Sharp, F.R.G.S., (*Horton Old Hall, Bradford*), 1, *Cambridge-square, Hyde Park, W.*
1871	Power, Edward, 16, *Southwell-gardens, Kensington, W.*
1877	*Prance, Reginald Heber, *Frognal, Hampstead, N.W.*
1877	Praschkauer, Maximilian, *Elgin House, Knockholt, Kent.*
1867	*Pratt, Robert Lindsay, 80, *Bondgate, Darlington.*
1877	Preen, Harvey Edward, *Kidderminster.*

Year of Election.	
1849	Presant, John, 13, *St. James's-square, S.W.*
1879	Price, James, F.R.G.S., 53, *Redcliffe-gardens, South Kensington, W.*
1874	Price, John Charles,
1871	Puleston, John Henry, M.P., 2, *Bank-buildings, E.C.; Westminster Palace Hotel, S.W.*
1837	*PURDY, FREDERICK, 35, *Victoria-road, Kensington, W.*
1879	Quail, Jesse, 27, *Mill-street, Whitehaven.*
1874	Quain, Richard, M.D., F.R.S., F.R.C.P., 67, *Harley-street, W.*
1872	*Rabino, Joseph, (*care of Crédit Lyonnais*), *Alexandria, Egypt.*
1858	*Radstock, The Right Honourable Lord, *East Sheen, Mortlake, S.W.*
1877	Raikes, Captain George Alfred, F.S.A., F.R. His. Soc., 63, *Belsize-park, Hampstead, N.W.*
1864	*Raleigh, Samuel, 9, *St. Andrew-square, Edinburgh.*
1860	Ramsay, Alexander Gillespie, F.I.A., *Canada Life Assurance, Hamilton, Canada West.*
1874	Ramsden, Sir James, of Barrow, D.L., *Furness Abbey, Lancashire.*
1879	Ranken, William Bayne, 37, *Stanhope-gardens, Queen's Gate, S.W.*
1880	Rankin, James, M.P., 35, *Ennismore-gardens, Prince's Gate, S.W.*
1881	Raper, Robert George, *Chichester.*
1865	Ratcliff, Colonel Charles, J.P., 26, *Lancaster-gate, Hyde Park, W.*
1859	Rathbone, P. H., *Greenbank Cottage, Liverpool.*
1878	Rathbone, William, 18, *Prince's-gardens, Prince's-gate, S.W.*
1874	*Ravenstein, Ernest George, F.R.G.S., 29, *Lambert-road, Brixton Rise, S.W.*

Year of Election.	
1877	*Rawlins, Thomas, 45, *King William-street, E.C.*
1870	Rawlinson, Robert, C.B., 11, *Boltons, West Brompton, S.W.*
1835	Rawson, Sir R. W., C.B., K.C.M.G., 68, *Cornwall-gardens, Queen's-gate, S.W.*
1880	Readdy, George, 13, *Harrington-street, Liverpool.*
1875	Record, John, 23, *Kenninghall-road, Clapton, E.*
1856	Redgrave, Alexander, C.B., *Factory Inspectors' Office, Whitehall, S.W.*
1867	Reid, Herbert Lloyd, 3, *Templeton-villas, Endlesham-road, Balham, S.W.*
1862	Reynolds, Frederick, *c/o London Institution, Finsbury Circus, E.C.*
1879	Rhodes, John G., *Oakdene, Beckenham, Kent.*
1876	Rice, Thomas Fitzroy, *Horseheads, New York, U.S.A.*
1878	Richards, George, L.R.C.P., Edin., *Mervyn Lodge, Ashfields, Ross, Herefordshire.*
1873	Ripon, The Most Hon. the Marquess of, K.G., F.R.S, &c., 1, *Carlton-gardens, S.W.*
1880	Roberts, A. F., 49, *Bow-lane, Cheapside, E.C.*
1868	ROBINSON, SIR WILLIAM ROSE, K.C.S.I., 50, *Norfolk-square, Hyde-park, W.*
1880	*Ronald, Byron L., 14, *Upper Phillimore-gardens, W.*
1880	Ronald, Robert Bruce,
1873	*Rosebery, The Right Hon. the Earl of, 107, *Piccadilly, W.*
1834	*Ross, David, of Bladensburg, *Rostrevor, Co. Down, Ireland.*
1880	Roth, Henry Ling, *Foulden, Mackay, Queensland, Australia.*
1865	Ruck, George T., *The Hawthorns, Dorville-road, Lee, S.E.*
1878	Rumley, George Chisnall, 33, *Bassett-road, Notting-hill, W.*
1879	Runtz, John, *Linton Lodge, Lordship-road, Stoke Newington, N.*
1878	Russell, Richard F., 8, *John-street, Adelphi, W.C.*
1874	Rutherford, Charles, 12, *Queen-street, E.C.*

Year of Election.	
1873	*Salisbury, The Most Hon. the Marquess of, P.C., F.R.S., 20, *Arlington-street, W.*
1881	Salmon, James, *Melford Lodge, Wanstead, Essex.*
1875	*Salomons, Sir David Lionel, Bart., J.P., *Broom-hill, Tunbridge Wells.*
1876	Salt, Thomas, M.P., *Weeping Cross, Stafford.*
1868	Samuelson, Bernhard, M.P., 56, *Prince's-gate, Hyde-park, S.W.*
1860	Sargant, William Lucus, *Edgbaston, Birmingham.*
1877	Saunders, Charles Edward, M.D., 21, *Lower Seymour-street, Portman-square, W.*
1874	Saunders, Francis, 6, *Limes-grove, Lewisham, S.E.*
1852	Saunders, James Ebenezer, jun., F.G.S. 9, *Finsbury-circus, E.C.*
1879	Saunders, William, *Mount View, Streatham, S.W.*
1877	Schiff, Charles,
1877	Schneidau, Charles John, 6, *Westwick-gardens, West Kensington-park, W.*
1880	Schreiber, Charles, M.P., *Langham House*, 11, *Portland-place, W.*
1878	Scott, Arthur J., 22, *Grafton-street, New Bond-street, W.*
1875	Scott, Sir Edward Henry, Bart., J.P., 27, *Grosvenor-square, W.*
1880	*Seeley, Charles, jun., M.P., *Sherwood Lodge, Nottingham.*
1873	Seyd, Richard, 38, *Lombard-street, E.C.*
1841	SHAFTESBURY, THE RIGHT HON. THE EARL OF, K.G., (*Honorary Vice-President*), 24, *Grosvenor-square, W.*
1879	Shepheard, Wallwyn Poyer B., M.A., 24, *Old Buildings, Lincoln's Inn, W.C.*
1871	Sidgwick, Henry, *Trinity College, Cambridge.*
1878	Simmonds, G. H., 1, *Whitehall, S.W.*
1850	Singer, Charles Douglas, 9, *The Terrace, Upper Clapton, E.*
1881	Skrine, Francis Henry, *United Service Club, Calcutta, India.*
1878	*Slaughter, Mihill, 42, *Binfield-road, Clapham, S.W.*

Year of Election.	
1877	Sloley, Robert Hugh. 121, *Bishopsgate-street Within, E.C.*
1869	Smee, Alfred Hutcheson, M.R.C.S., *The Grange, Wallington, Surrey.*
1878	*Smith, Charles, M.R.I.A., F.G.S., Assoc. Inst. C.E., *Barrow-in-Furness.*
1874	Smith, Edward, *St. Mildred's House, Poultry, E.C.*
1871	Smith, E. Cozens, 1, *Old Broad-street, E.C.*
1878	*Smith, George, LL.D., C.I.E., *Serampore House, Napier-road, Edinburgh.*
1877	Smith, Howard S., 37, *Bennett's Hill, Birmingham.*
1878	*Smith, James, *South Indian Railway, Negapatam, Madras.*
1880	Smith, Jervoise, 1, *Lombard-street, E.C.*
1877	Smith, John, 8, *Old Jewry, E.C.*
1879	Smith, J. Fisher, 76, *Cheapside, E.C.*
1873	Smith, Col. John Thomas, R.E., F.R.S., F.I.A., 10, *Gledhow Gardens, Wetherby-road, S. Kensington, S.W.*
1880	Smith, Thomas Sherwood, 21, *Richmond-terrace, Clifton.*
1867	*Smith, The Right Honourable William Henry, M.P., 3, *Grosvenor-place, S.W.*
1878	Souter, John Clement, M.D., F.C.S.,
1855	Sowray, John Russell, *Office of Woods*, 1, *Whitehall-place, S.W.*
1877	Spalding, Samuel, *South Darenth, Kent.*
1873	Spence, John Berger, 31, *Lombard-street, E.C.*
1867	*Spencer, Robert James, *High-street, Portsmouth.*
1876	Spensley, The Hon. Howard, *Carmenhof, Bad Creuznach, Germany.*
1881	Spice, Robert Paulson, C.E., 21, *Parliament-street, Westminster, S.W.*
1874	Spicer, James, J.P., *Harts, Woodford, Essex.*
1856	*Sprague, Thomas Bond, M.A., F.I.A., 26, *St. Andrew-square, Edinburgh.*
1872	Spriggs, Joseph, *Dale Cottage, Foxton, near Market Harbro'.*
1880	Stafford, Sir Edward William, K.C.M.G., 48, *Stanhope-gardens, S.W.*

Year of Election.	
1856	*Stainton, Henry Tibbats, *Mountsfield, Lewisham, S.E.*
1881	Stancliffe, Frederick, 42, *St. John-street, Montreal, Canada.*
1877	Stanford, Edward, 55, *Charing Cross, S.W.*
1877	Staples, Sir Nathaniel Alexander, Bart., *Lissan, Cookstown, Tyrone, Ireland.*
1880	Stark, James, 17, *King's Arms-yard. E.C.*
1880	Stephens, William Davies, 4, *Abbotsford-terrace, Newcastle-on-Tyne.*
1877	Stone, William A., 90, *Cannon-street, E.C.; West Hill Lodge, Dartford, Kent.*
1855	*Stott, John, F.I.A., 12, *Essex-villas, Kensington, W.*
1865	Strachan, Thomas Young, F.I.A., 18, *Grainger-street West, Newcastle-on-Tyne.*
1872	Strachey, General Richard, R.E., C.S.I., F.R.S., *India Office, Westminster, S.W.*
1880	Strutt, Hon. Frederick, *Milford House, near Derby.*
1878	Stubbins, Thomas K., *Market-street, Bradford, Yorks.*
1880	*Summers, William, M.P. (*Sunnyside, Ashton-under-Lyne*), *Reform Club, Pall Mall, S.W.*
1881	Sykes, George Samuel, 1, *Grant's Lane, Calcutta, India.*
1873	Tait, Lawson, F.R.C.S., 7, *Great Charles-street, Birmingham.*
1859	*Tait, Patrick Macnaghten, 39, *Belsize Park, N.W.; and Oriental Club, W.*
1880	Taylor, George, 17, *Abchurch-lane, E.C.*
1877	Taylor, John E., 12, *Queen's Gate-gardens, South Kensington, S.W.*
1873	Taylor, Peter Alfred, M.P., 22, *Ashley-place, Westminster, S.W.*
1838	*Taylor, General Pringle, K.H.,
1880	Temple, Sir Richard, Bart., G.C.S.I., D.C.L., &c., *Carlton Club, Pall Mall, S.W.*
1879	Thomas, William Angell, *King's College, Strand, W.C.*

Year of Election.	
1879	Thomas, W. Cave, 53, *Welbeck-street, Cavendish-square, W.*
1878	Thompson, Alfred Boyle, M.R.C.P., 18, *Serjeant's-inn, Temple, E.C.*
1878	Thompson, Captain C. Halford, (late R.A.), 9, *Colleton-crescent, Exeter.*
1864	*Thompson, Henry Yates, 26*a*, *Bryanston-square, W.*
1868	Thomson, James, 35, *Nicholas-lane, E.C.*
1871	Thomson, Thomas D., 57, *Moorgate-street, E.C.*
1877	Tiddy, Samuel Vesey, 110, *Cannon-street, E.C.*
1879	Tipping, William, *Oakfield House, Ashton-under-Lyne.*
1855	Tomline, Colonel George, 1, *Carlton House-terrace, S.W.*
1868	*Treatt, Frank Burford, *Immigration Office, Sydney, N.S. Wales.*
1868	Tritton, Joseph Herbert, 54, *Lombard-street, E.C.*
1880	Tupp, Alfred Cotterill, (*Accountant-General, Madras*), *c/o* H. S. King, & Co., 45, *Pall Mall, S.W.*
1878	Turnbull, Alexander, 118, *Belsize park-gardens, N.W.*
1867	Turner, Thomas, *Ashley House, Kingsdown, Bristol.*
1878	Turton, William Woolley, *The Hollies, Bickley, Kent.*
1880	Twist, John Charles, 78, *Union-road, Hurst Brook, Ashton-under-Lyne.*
1841	Tyndall, William Henry, 92, *Cheapside, E.C.*
1873	Underdown, Robert George, *London-road Railway Station, Manchester.*
1877	*Urlin, Richard Denny, 22, *Stafford-terrace, Phillimore-gardens, W.*
1842	Valpy, Richard, 5, *Rutland-gate, S.W.*
1868	Vanderbyl, Philip, 51, *Porchester-terrace, W.*

Year of Election.	
1880	Van de Linde, Gérard, A.C.A., 12, *Laurence Pountney-lane, Cannon-street, E.C.*
1874	Vian, William John, 64, *Cornhill, E.C.*
1876	Vigers, Robert, 4, *Frederick's-place, Old Jewry, E.C.*
1877	Vine, John Richard Somers, 45, *St. Paul's-road, Camden-square, N.W.*
1873	Vivian, Major Quintus, D.L , F.R.G.S., 17, *Chesham-street, S.W.*
1861	Waddell, James, 1, *Queen Victoria-street, E.C.*
1873	Waddy, Henry Edward, L.R.C P., M.R.C.S., 2, *Clarence-street, Gloucester.*
1877	Wakeford, Henry, *Home Office, Whitehall, S.W.*
1857	***Walford, Cornelius**, F.I.A., 86, *Belsize-park-gardens, N.W.*
1871	*Walker, R. Bailey, *The Grove, Didsbury, Manchester.*
1877	Wallington, Charles, 51, *Moorgate-street, E.C.*
1868	Wallis, Charles, J., 62, *Doughty-street, W.C.*
1880	Wallis, E. White, F.M.S., 1, *Springfield-road, St. John's Wood, N.W.*
1876	Walter, Arthur Fraser, 15, *Queen's Gate-terrace, S.W.*
1877	Walter, Captain Edward, *Commissionaires' Office*, 419, *Strand, W.C.*
1850	Walter, John, M.P., 40, *Upper Grosvenor-street, W.*
1879	Wansey, Arthur H., *Sambourne, Stoke Bishop, Bristol.*
1873	Waring, Charles, 19B, *Grosvenor-square, S.W.*
1865	Waterhouse, Edwin, B.A., 44, *Gresham-street, E.C.*
1873	Watson, J. Forbes, M.A., M.D., LL.D. *India Museum, South Kensington, W.*
1865	Watson, William West, *City Chamberlain, Glasgow.*
1865	Webster, Alphonsus, 44, *Mecklenburg-square, W.C.*
1873	Webster, James Hume, 14, *Chapel-street, Park-lane, W.*
1873	Weguelin, Thomas Matthias, 14, *Devonshire-street, Portland-place, W.*

Year of Election.	
1879	Weir, William, 38, *South Audley-street, W.*
1873	*Welby, Reginald Earle, C.B., *The Treasury, Whitehall, S.W.*
1879	Welch, John Kemp, J.P., *Clock House, Clapham-common, S.W.*
1855	Weldon, James Walton, 1, *St. James's-square, S.W.*
1873	Wellington, His Grace the Duke of, K.G., &c., &c. *Apsley House, Piccadilly, W.*
1873	Wells, W. Lewis, 66, *Old Broad-street, E.C.*
1855	**Welton, Thomas Abercrombie,** (5, *Moorgate-street, E.C.*), *Rectory Grove House, Clapham, S.W.*
1879	Wenley, James Adams, *Bank of Scotland, Bank-street, Edinburgh*
1876	Westgarth, William, 28, *Cornhill, E.C.*
1879	*Westlake, John, Q.C., LL.D., *The River House*, 3, *Chelsea Embankment, S.W.*
1878	Wharton, James, 10, *Buckland-crescent, Belsize-park, N.W.*
1859	Whitbread, Samuel, M.P., 10, *Ennismore-gardens, Princes-gate, S.W.*
1876	Whitcher, John, Jr., F.I.A., 81, *King William-street, E.C.*
1868	White, James, 8. *Thurloe-square, South Kensington, S.W.*
1863	White, Leedham, 44, *Onslow-gardens, S.W.*
1879	White, Robert Owen, J.P., *The Priory, Lewisham, S.E.*
1871	White, William, 70, *Lombard-street, E.C.*
1878	Whiteford, William, 3, *Temple-gardens, E.C.*
1873	Whitehead, Jeffery, 39, *Throgmorton-street, E.C.*
1879	*Whitwill, Mark, J.P., *Redland House, Durdham-park, Bristol.*
1878	Wilcox, William. L.R.C.P. (Edin.), M.R.C.S., *Holly House, North Walsham, Norfolk.*
1875	Wilkinson, Thomas Read, *Manchester and Salford Bank, Manchester.*
1860	Willans, John Wrigley, 2, *Headingly-terrace, Leeds.*
1879	Williams, Edward, *Cleveland Lodge, Middlesborough.*
1880	Williams, Colonel E. C. J., R.E., C.I.E., *India Office, Whitehall.*

Year of Election.	
1864	Williams, Frederick Bessant, 2, *Ludgate Hill, E.C.*
1881	Williams, Henry Maunder, 58, *Acre-lane, Brixton, S.W.*
1870	Williams, H. R., 3, *Lime-street, E.C.; and Oak Lodge, Highgate, N.*
1876	Williams, John Worthey, 5, *Marlborough-road, Upper Holloway, N.*
1877	WILLIAMS, RICHARD PRICE, C.E., 38, *Parliament-street, S.W.*
1875	Wilson, Edwards D. J., M.A., *Airlie House, The Grove, Camberwell, S.E.*
1874	*Wilson, Robert Porter, 5, *Cumberland-terrace, Regent's-park, N.W.*
1878	Wilton, Francis, M.R.C.S., *Ticehurst, Sussex.*
1872	*Winch, William R., *North Mymms Park, Hatfield, Herts.*
1868	Wood, H. W. I. (*Calcutta*), *Care of Messrs. Richardson*, 13, *Pall Mall, S.W.*
1877	Woodrow, Thomas John, *Sisland Cottage, Wanstead.*
1873	Woods, Henry, *Warnford Park, Bishop's Waltham, Hants.*
1838	Woolhouse, Wesley Stoker Barker, F.R.A.S., *Alwyne Lodge, Alwyne-road, Canonbury, N.*
1874	Woolner, Thomas, R. A., 29, *Welbeck-street, Cavendish-square, W.*
1878	Worsfold, Rev. J. N., M.A., *Haddlesey Rectory, near Selby, Yorkshire.*
1880	Wren, Walter, 7, *Powis-square, W.*
1877	Wright, George, 38, *Theobald's-road, W.C.*
1838	*Wyatt-Edgell, Rev. Edgell, 40, *Lower Grosvenor-street, W.; Stanford Hall, Rugby.*
1872	Yeatman, Morgan, *Shawfield, Bromley, Kent.*
1879	Yeats, John, LL.D., 7, *Beaufort-square, Chepstow.*
1877	*Youll, John Gibson, *Jesmonds-road, Newcastle-on-Tyne.*
1849	*Young, Charles Baring, 12, *Hyde-park Terrace, W.*

⁂ *The Executive Committee request that any inaccuracy in the foregoing list may be pointed out to the* ASSISTANT SECRETARY *and that all changes of address may be notified to him, so that delay in forwarding communications and the publications of the Society may be avoided.*

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,, ... DR. SCHLEISNER, *Medical Officer of Health.*

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,,	M. le Dr. ARTHUR CHERVIN, *Member of the Statistical Society of Paris; General Secretary of the International Congress of Demography.*
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,,	M. CLEMENT JUGLAR, *President Sortant de la Société de Statistique de Paris.*
,,	M. ALFRED LEGOYT, *Ancien Directeur de la Statistique Générale.*
,,	M. E. LEVASSEUR, *Memore de l'Institut, Professeur au Collége de France.*
,,	M. DE PARIEU, *Membre de l'Institut, Ancien Député, Sénateur, et Ministre.*
,,	M. LE PLAY, *Ancien Sénateur.*
,,	M. le PRÉSIDENT DE LA SOCIÉTÉ DE STATISTIQUE DE PARIS.
,,	THE HON. M. JÉAN BAPTISTE LÉON SAY, *President of the Senate of the Republic of France.*

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,,	DR. ERNEST ENGEL, *Director of the Royal Statistical Office of Prussia.*
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Greece.

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,,	IL MARCHESE ERMENEGILDO DEI CINQUE QUINTILI, *Avvocato, Segretario Generale della Commissione degl' Ospedali di Roma.*
Turin	SIGNOR GIOVANNI FLECHIA, *Professore e Preside della Facolta di Filosofia dell' Università di Torino.*
Venice	SIGNOR FRANCESCO FERRARA, *Professore e Direttore della Scuola Superiore di Commercio a Venezia; già Deputato al Parlamento; già Ministro delle Finanze.*

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Lisbon	M. A. J. D'AVILA, *Ministre d'État honoraire, Conseilleur d'État, et Député des Cortès.*

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,,	M. le DR. J. B. VERNADSKI, *Conseiller d'État actuel, Ex-professeur.*
,,	M. A. VESSELOVSKY, *Sécrétaire du Comité Scientifique du Ministère Impérial des Finances.*

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Geneva	M. MALLET.

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Washington	THE HON. CHARLES F. CONANT, *late Assistant Secretary to the Treasury of the United States.*
,,	JOHN S. BILLINGS, Esq., M.D., *Vice-President of the National Board of Health of the United States of America.*
,,	EDWARD YOUNG, Esq., *formerly Chief of the Bureau of Statistics, United States of America.*

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Queensland.

Brisbane .... HENRY JORDAN, Esq., *Registrar-General.*

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Adelaide .... JOSIAH BOOTHBY, Esq., C.M.G., *Under Secretary and Government Statist of South Australia.*

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Hobart .... E. SWARBRECK HALL, Esq., M.R.C.S.

,, ... EDWIN CRADOCK NOWELL, Esq., *Government Statistician.*

Victoria.

Melbourne .... HENRY HEYLYN HAYTER, Esq., *Government Statist.*

,, ... WILLIAM HENRY ARCHER, Esq., F.I.A., F.L.S., &c.

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RULES OF THE STATISTICAL SOCIETY.

Objects of the Society.

1. THE Statistical Society was established to collect, arrange, digest, and publish facts illustrating the condition and prospects of society, in its material, social and moral relations. These facts are for the most part arranged in tabular forms, and in accordance with the principles of the numerical method.

The Society not only collects new materials, but condenses, arranges, and publishes those already existing, whether unpublished or published in diffuse and expensive forms, in the English or in any foreign language.

The Society likewise promotes the discussion of legislative and other public measures from the statistical point of view. These discussions form portions of the Transactions of the Society.

Constitution of the Society.

2. The Society consists of Fellows and Honorary Members, elected in the manner laid down in the following rules.

Number of Fellows and Honorary Members.

3. The number of Fellows shall be unlimited. Foreigners or British subjects of distinction residing abroad may be admitted as Honorary Members: of whom the number shall not be more than seventy at any one time.

Proposal of Fellows.

4. Every Candidate for admission as a Fellow of the Society, shall be proposed by two or more Fellows, who, shall certify from their personal knowledge of him or of his works, that he is a fit person to be admitted a Fellow of the Statistical Society. Every such certificate having been read and approved at a Meeting of the Council, shall be suspended in the meeting-room of the Society until the following Ordinary Meeting, at which the vote shall be taken upon it.

Election of Fellows.

5. In the election of Fellows, the votes shall be taken by ballot. No person shall be admitted unless at least sixteen Fellows vote, and unless he have in his favour three-fourths of the Fellows voting.

Admission of Fellows.

6. Every Fellow elect shall appear for his admission on or before the third Ordinary Meeting of the Society after his election, or within such time as shall be granted by the Council.

The manner of admission shall be thus:—

Immediately after the reading of the minutes, the Fellow elect, having first paid his subscription for the current year or his composition, shall sign the obligation contained in the Fellowship-book, to the effect following:—

"We, who have underwritten our "names, do hereby undertake, each for "himself, that we will endeavour to "further the good of the Statistical "Society for improving Statistical "Knowledge, and the ends for which "the same has been founded; that "we will be present at the Meet- "ings of the Society as often as con- "veniently we can, and that we will "keep and fulfil the Rules and Orders "of this Society: provided that when- "soever any one of us shall make known, "by writing under his hand, to the "President for the time being, that he "desires to withdraw from the Society, "he shall be free thenceforward from "this obligation."

Whereon the President, taking him by the hand, shall say,—"*By the autho- "rity and in the name of the Statis- "tical Society I do admit you a "Fellow thereof.*"

Upon their admission Fellows shall have the right of attaching to their names the letters F.S.S.

Admission of Honorary Members.

7. There shall be Two Meetings in the year, on such days as shall be hereafter fixed by the Council, at which *Honorary Members* may be elected.

No Honorary Member can be recommended for election but by the Council. Any Member of the Council may propose a Foreigner or British subject of distinction residing abroad at any Meeting of the Council, delivering at the same time a written statement of the qualifications, offices held by, and published works of the person proposed; and ten days' notice at least shall be given to every Member of the Council, of the day on which the Council will vote by ballot on the question whether they will recommend the person proposed. No such recommendation to the Society shall be adopted unless at least three-fourths of the votes are in favour thereof.

Notice of the recommendation shall be given from the chair at the Meeting of the Society next preceding that at which the vote shall be taken thereon. No person shall be elected an Honorary Member unless sixteen Fellows vote and three-fourths of the Fellows voting be in his favour.

The Council shall have power to elect as Honorary Members, the President for the time being of the Statistical Societies of Dublin, Manchester, and Paris, and the President of any other Statistical Society at home or abroad.

Payments by Fellows.

8. Every Fellow of the Society shall pay a yearly subscription of *Two Guineas*, or may at any time compound for his future yearly payments by paying at once the sum of Twenty Guineas.*

Defaulters.—Withdrawal of Fellows.

9. All yearly payments are due in advance on the 1st of January, and if any Fellow of the Society have not paid his subscription before the 1st of July, he shall be applied to in writing by the Secretaries, and if the same be not paid before the 1st of January of the second year, a written application shall again be made by the Secretaries, and the Fellow in arrear shall cease to receive the Society's publications, and shall not be entitled to any of the privileges of the Society until such arrears are paid; and if the subscription be not discharged before the 1st of February of the second year, the name of the Fellow thus in arrear shall be exhibited as a defaulter on a card suspended in the meeting-rooms; and if, at the next Anniversary Meeting, the amount still remain unpaid, the defaulter shall be announced to be no longer a Fellow of the Society, the reason for the same being at the same time assigned. No Fellow of the Society can withdraw his name from the Society's books, unless all arrears be paid; and no resignation will be deemed valid unless a written notice thereof be communicated to the Secretaries. No Fellow shall be entitled to vote at any Meeting of the Society until he shall have paid his subscription for the current year.

Expulsion of Fellows.

10. If any Fellow of the Society, or any Honorary Member, shall so demean himself that it would be for the dishonour of the Society that he longer continue to be a Fellow or Member thereof, the Council shall take the matter into consideration; and if the majority of the Members of the Council present at some Meeting (of which and of the matter in hand such Fellow or Member, and every Member of the Council, shall have due notice) shall decide by ballot to recommend that such Fellow or Member be expelled from the Society, the President shall at the next Ordinary Meeting announce to the Society the recommendation of the Council, and at the following Meeting the question shall be decided by ballot, and if at least three-fourths of the number voting are in favour of the expulsion, the President shall forthwith cancel the name in the Fellowship-book, and shall say,—

" By the authority and in the name
" of the Statistical Society, I do declare
" that A. B. (naming him) is no longer
" a Fellow (or Honorary Member)
" thereof."

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* Cheques should be made payable to "The Statistical Society," and crossed "Messrs. Drummond and Co."

And such Fellow or Honorary Member, shall thereupon cease to be of the Society.

Trustees.

11. The property of the Society shall be vested in *three Trustees*, chosen by the Fellows. The Trustees are eligible to any other offices in the Society.

President, Council, and Officers.

12. The Council shall, independent of the Honorary Vice-Presidents, consist of thirty-one Members, of whom one shall be the President, and four be nominated Vice-Presidents. The Council shall be elected as hereafter provided. Any five of the Council shall be a quorum. From the Council shall be chosen a *Treasurer, three Secretaries*, and a *Foreign Secretary*, who may be one of the Secretaries. Six Fellows, at least, who were not of the Council of the previous year, shall be annually elected.

Election of President and Officers.

13. The President shall be chosen yearly by the Fellows. The same person shall not be eligible more than two years in succession.

The former Presidents who are continuing Fellows of the Society shall be Honorary Vice-Presidents; four Vice-Presidents shall be yearly chosen from the Council by the President.

Any Honorary Vice-President may take part in the deliberations of the Council on expressing a wish to that effect: and when attending the Meetings of the Council, shall exercise all the rights and powers of a Member of the Council.

The Treasurer and Secretaries shall be chosen yearly by the Fellows from the Council.

Election of Council.

14. The Council shall, previously to the Anniversary Meeting, nominate, by ballot, the *Fellows whom they recommend* to be the next President and Council of the Society. They shall also recommend for election a Treasurer and Secretaries (in accordance with Rule 12). Notice shall be sent to every Fellow whose residence is known to be within the limits of the metropolitan post, at least a fortnight before the Anniversary Meeting, of the names of Fellows recommended by the Council.

Extraordinary Vacancies.

15. On any *extraordinary vacancy* of the Office of the President, or other Officer of the Society, or in the Council, the Secretaries shall summon the Council with as little delay as possible, and a majority of the Council, thereupon meeting in their usual place, shall, by ballot, and by a majority of those present, choose a new President, or other Officer of the Society, or Member of the Council, to be so until the next Anniversary Meeting.

Committees.

16. The Council shall have power to appoint *Committees of Fellows* and also an Executive Committee of their own body. The Committees shall report their proceedings to the Council. No report shall be communicated to the Society which is not approved by the Council.

Meetings Ordinary and Anniversary.

17. The *Ordinary Meetings* of the Society shall be monthly, or oftener, during the Session, which shall be from the 1st of November to the 1st of July, both inclusive, on such days and at such hours as the Council shall declare. The *Anniversary Meeting* shall be held on such day in June of each year as shall be appointed by the Council for the time being.

Business of Ordinary Meetings.

18. The business of the *Ordinary Meetings* shall be to admit Fellows, to read and hear reports, letters, and papers on subjects interesting to the Society. Nothing relating to the rules or management of the Society shall be discussed at the Ordinary Meetings, except that the *Auditors' Report* shall be received at the Ordinary Meeting in *February*, and that the Minutes of the Anniversary Meeting, and of every Special General Meeting, shall be confirmed at the next Ordinary Meeting after the day of such Anniversary or Special General Meeting. *Strangers* may be introduced to the Ordinary

Meetings, by any Fellow, with the leave of the President, Vice-President, or other Fellow presiding at the Meeting.

Business of Anniversary Meeting.

19. The business of the *Anniversary Meeting* shall be to elect the Officers of the Society, and to discuss questions on its rules and management. No Fellows or Honorary Members shall be proposed or admitted at the Anniversary Meeting. No Fellow shall moot any question on the rules or management of the Society at the Anniversary Meeting, unless after *three weeks' notice* thereof given to the Council, but amendments to any motion may be brought forward without notice, so that they relate to the same subject of motion. The Council shall give fourteen days' notice to every Fellow of all questions of which such notice shall have been given to them.

Special General Meetings.

20. The Council may, at any time, call a *Special General Meeting* of the Society when it appears to them necessary. Any ten Fellows may require a Special General Meeting to be called, by notice in writing signed by them, delivered to one of the Secretaries at an Ordinary Meeting, specifying the questions to be moved. The Council shall, within one week of such notice, appoint a day for such Special General Meeting, and shall give one week's notice of every Special General Meeting, and of the questions to be moved, to every Fellow within the limits of the metropolitan post, whose residence is known. No business shall be brought forward at any Special General Meeting other than that specified in the notice for the same.

Auditors.

21. At the *first Ordinary Meeting* of each year, the Fellows shall choose two *Auditors*, not of the Council, who, with one of the Council, chosen by the Council, shall audit the Treasurer's accounts, and report thereon to the Society, which report shall be presented at the Ordinary Meeting in February. The Auditors shall be empowered to examine into the particulars of all expenditure of the funds of the Society where they shall see occasion, and may report their opinion upon any part of it.

Duties of the President.

22. The *President* shall preside at all Meetings of the Society, Council, and Committees, which he shall attend, and in case of an equality of votes, shall have a second or casting vote. He shall sign all diplomas of admission of Honorary Members. He shall admit and expel Fellows and Honorary Members, according to the rules of the Society.

Duties of the Treasurer.

23. The *Treasurer* shall receive all moneys due to, and pay all moneys due from, the Society, and shall keep an account of his receipts and payments. No sum exceeding Ten Pounds shall be paid but by order of the Council, excepting always any lawful demand for rates or taxes. He shall invest the moneys of the Society in such manner as the Council shall from time to time direct.

Duties of the Secretaries.

24. The *Secretaries* shall, under the control of the Council, conduct the correspondence of the Society; they or one of them shall attend all Meetings of the Society and Council, and shall have the care of duly recording the Minutes of the Proceedings. They shall issue the requisite notices, and read such papers to the Society as the Council may direct.

Powers of the Vice-Presidents.

25. A *Vice-President*, whether Honorary or nominated, in the chair, shall act with the power of the President, in presiding and voting at any Meeting of the Society or Council, and in admitting Fellows; but no Vice-President shall be empowered to sign diplomas of admission of Honorary Members, or to expel Fellows. In the absence of the President and Vice-Presidents, any Fellow of the Society may be called upon, by the Fellows then present, to preside at an Ordinary Meeting. The Fellow so presiding may admit Fellows, but shall not be empowered to act otherwise as resident, or Vice-President.

Powers of the Council.

26. The Council shall have control over the papers and funds of the Society, and may, as they shall see fit, direct the publication of papers and the expenditure of the funds, so, that they shall not at any time contract engagements on the part of the Society beyond the amount of the balance that would be at that time in the Treasurer's hands, if all pre-existing debts and liabilities had been satisfied.

27. The Council shall be empowered at any time to frame *Regulations* not inconsistent with these rules, which shall be, and remain in force until the next Anniversary Meeting at which they shall be either affirmed or annulled; but no Council shall have power to renew Regulations which have once been disapproved at an Anniversary Meeting.

28. No Dividend, Gift, Division, of Bonus in money shall be made by the Society, unto or between any of the Fellows or Members, except as hereinafter provided.

29. The Council shall publish a Journal of the Transactions of the Society, and such other Statistical Publications, as they may determine upon, and may from time to time pay such sums to Editors and their assistants, whether Fellows of the Society or not, as may be deemed advisable.

30. All communications to the Society are the property of the Society, unless the Council allow the right of property to be specially reserved by the Contributors.

REGULATIONS OF THE LIBRARY.

1. The Library is open daily from 10 a.m. till 5 p.m., except on Saturdays, when it closes at 2 p.m.; and it is entirely closed during the month of September.

2. Members of the Society are permitted to take out Books on making personal application, or by letter addressed to the Librarian.

3. Members are not to have more than two works at a time, nor keep any books longer than a month.

4. Scientific Journals and Periodicals are not circulated until the volumes are completed and bound.

5. Cyclopædias and works of reference are not circulated.

6. Any Member damaging a book, either replaces the work, or pays a fine equivalent to its value.

7. Books taken from the shelves for reference, are *not* to be replaced, but must be laid on the Library table.

8. The Secretary shall report to the Council any infringement of these regulations.

DONORS TO THE LIBRARY.

During the Year 1881.

Foreign Countries.

Argentine Confederation.
Austria and Hungary
Belgium.
China.
Denmark.
Egypt.
France.
Germany.
Prussia.
Bavaria.
Saxony.
Greece.
Italy.
Japan.
Netherlands.
Portugal.
Roumania.
Russia.
Spain.
Sweden and Norway.
United States of America.
Uruguay.

The States of—
- Indiana.
- Iowa.
- Kansas.
- Massachusetts.
- Michigan.
- New York.
- Ohio.
- Pennsylvania.
- Rhode Island.
- Wisconsin.

Indian, Colonial, and other Possessions.

Bengal.
Canada.
Cape of Good Hope.
Ceylon.
Cyprus.
Grenada.
India (British).
Jamaica.
Mauritius.
New South Wales.
New Zealand.
Queensland.
South Australia.
Tasmania.
Victoria.

Public Departments.

The Admiralty.
,, Army Medical Department.
,, Board of Trade.
,, Convict Prisons, Directors of.
,, Customs.
,, Factories, Inspectors of.
,, Fire Brigade, Metropolitan.
,, Friendly Societies, Registrar of.
,, Home Office
,, India Office.
,, Local Government Board.
The Naval Medical Department.
,, Museum of Practical Geology.
,, Police, Dublin Metropolitan.
,, Police, London Metropolitan.
,, Registrar-General of England.
,, ,, ,, Ireland.
,, ,, ,, Scotland.
,, Tithe Commissioners.
,, Warden of Standards.
,, Woods, Forests, and Land Revenues, Commissioners of.

Actuaries, The Institute of, London.
Adelaide Philosophical Society.
Agriculture, Central Chamber of.
Allen, Messrs. W. H. & Co., London.
American—
- Academy of Arts and Sciences, Boston.
- Academy of Natural Sciences, Philadelphia.
- Agricultural Association, New York.
- Geographical Society of New York.
- Philosophical Society of Philadelphia.
- Statistical Association, Boston.

Amici, F. Bey, Egypt.
Annand, W., Esq., London.

During the Year 1881—*Continued.*

Arts, Society of.
Asiatic Society of Bengal.
,, ,, Japan.
Astor Library, New York U. S. A.
Athenæum, The Editor of.
Atkinson, E., Esq., Boston, U.S.A.
Austrian Statistical Commission.
Austrian Consul-General, London.
Austro-Hungarian Embassy, London

Bagot, John, Esq., Dublin.
Baker, Dr. H. B., Lansing, U.S.A.
Bankers' Institute, London.
,, Magazine, London.
,, ,, New York.
Barry, Dr. F. W., Cyprus.
Bavaria, Royal Bureau of Statistics.
Beardsall, F. E. M., Esq.
Beddoe, Dr. J., F.R.S., Bristol.
Belgium, Academy, Royal.
,, Minister of Interior.
Berg, Dr. F. T., Stockholm.
Berlin, Statistical Bureau of.
Besso, Marco, Esq., Trieste.
Bevan, G. P., Esq., London.
Beverley, H., Esq., Calcutta.
Bikélas, D., Esq., Athens.
Birmingham Free Public Libraries.
Blaine, J. G., Esq., Washington.
Blakeney, W. T., Esq., Brisbane.
Boccardo, Professor G., Italy.
Boddy, E. M., Esq., F.R.C.S.
Böckh, Herr, Berlin.
Bodio, Professor Luigi, Rome.
Böhmert, Dr. V., Dresden.
Boothby, J., Esq., C.M.G.
Boschkemper, G., Esq., Holland.
Bourbinot, J. G., Esq., Toronto.
Bourne, Stephen, Esq.
Bowditch, H. J., Esq., Boston.
Brachelli, Dr. H. F., Vienna.
Brassey, Sir Thos., M.P.
Bristol Chamber of Commerce.
British Association, The.
,, Trade Journal, The Editor of.
British Iron Trade Association.
Brussels, The Sheriff of.
Bruton, Leonard, Esq., Bristol.
Budapest, Chamber of Commerce.
,, Statistical Bureau.
Buenos Ayres, Statistical Bureau of.
Building Societies and Land Companies' Gazette, The Editor of.
Bunso Kurê, Esq., Japan.
Bureau des Longitudes, Paris.

Cape of Good Hope, The Colonial Secretary of.
Capital and Labour, The Editor of.
Centennial Commission, 1876, U.S.A.
Cernuschi, Henri, Esq.
Chadwick, Edwin, Esq., London.
Chadwick, John O., Esq., London.
Chambers of Commerce, The Associated.
Chervin, Dr. A., of Paris.
China, The Inspector-General of Chinese Maritime Customs.
Civil Engineers, Institution of.
Cobden Club, the Committee of.
Coldstream, J. B., Esq., Edinburgh.
Commercial World, The Editor of.
Coni, Dr. E. R., Buenos Ayres.
Cossa, Dr. L.
Courtney, J. M., Esq., Canada.
Craigie, Major P. G., London.

Danvers, Juland, Esq., London.
Deloche, M., Paris.
Denmark, Statistical Bureau of.
,, Political Economy Soc.
Doyle, Patrick, Esq., C.E.
Dublin, Chief Com. of Police.
Du Cane, Colonel E. F., C.B.

East India Association, London.
Economist, The Editor of.
Economiste Français, The Editor of.
Edinburgh, The City Chamberlain.
,, Royal Society of.

During the Year 1881—*Continued.*

Egypt, Ministry of the Interior.
Ellison & Co., Messrs., Liverpool.
Engel, Dr. Ernest, Berlin.
Fairlamb, W., Esq., York.
Feurer, John, Esq., Liverpool.
Finance Chronicle, The Editor of.
Fleming, Sandford, Esq.
Fleming, William, Esq.
Ford, W. C., New York.
Foster, C. J., Esq., London.
Foville, M. A. de, Paris.
France, H. E. The Minister of—
  Agriculture and Commerce.
  Finance.
  Justice.
  Public Instruction.
  Public Works.
Frankfort-on-Maine—
  Geographical and Statistical Soc.
  Medical Society.
Franklin Institute, Philadelphia.
Friendly Societies, The Registrar of.

Garraway, The Hon. D. G., Grenada.
Geneva, The Public Library of.
Geddes, Patrick, Esq., Edinburgh.
Germany, Imperial Statistical Office.
German Consul-General, London.
German Railways, Administration of
Giffen, Robert, Esq.
Glasgow, Philosophical Society of.
  „ Sanitary Department.
Goehlert, Dr. Vincent, Berlin.
Guy, Dr. W. A., F.R.S., &c.
Guyot, Yves, Esq., Paris.

Hall, E. Hepple, Esq., London.
Hall, Dr. E. S., Tasmania.
Hamburg, Chamber of Commerce.
  „ Sanitary Bureau of.
  „ Statistical Bureau of.
Hamilton, Rowland, Esq., London.
Hancock, Dr. W. N., Dublin.
Harrison & Sons, Messrs., London.
Hart, R., Esq., Shanghai.
Hayter, H. H., Esq., Melbourne.
Hector, Dr. James, Wellington.
Hewat, Archibald, Esq., Glasgow.
Hill, Chas. S., Esq., Washington.
Historic Society of Lancashire and Cheshire.
Hölder, Alfred, Esq., Vienna.
Howard Association, London.
Huggard, Dr. W. R., London.
Hungary, Statistical Bureau of.

Illinois, Bureau of Statistics.
India, The Superintendent of Government Printing.
Indiana, Department of Statistics and Geology.
Insurance Gazette, The Editor of.
  „ Record, The Editor of.
  „ World, The Editor of.
Investors' Monthly Manual, The.
Iron and Coal Trades' Review, The.
Italian Legation, London, The.
Italy, Director General of Statistics.
  „ Hygienic Society, Milan.

Jamaica, The Registrar-General.
Janssens, Dr. E., Brussels.
Japan, Statistical Office, Tokio.
Jarvis, Dr. E., Dorchester, Mass.
Jenkins, H. M., Esq., London.
Jenkins, F. L., Esq., Brooklyn, New York.
Jennings, John, Esq., London.
Jevons, W. Stanley, Esq., F.R.S.
Johnston, Rev. J., Upper Norwood.
Johnston, Messrs. W. and A. K.
Jordan, Henry, Esq., Brisbane.

Keleti, Chas., Esq., Budapest.
Kelly, Dr., Worthing.
Kennedy, J. C. G., Esq., U.S.A.
King's College, London.
Kirby, M., Esq.
Knox, John Jay, Esq., Washington.

During the Year 1881—*Continued.*

Korosi, Joseph, Budapest.
Kyshe, J. B., Esq., Mauritius.

Labourers' Friend, The Editor of.
Labouring Classes, Society for Improving the.
Laveleye, Prof. Emile de, Liege.
Layton, Messrs. C. and E., London.
Legoyt, A., Esq., Paris.
Lee, Lionel, Esq., Ceylon.
Levasseur, M. E., Paris.
Lisboa, Geographical Society of.
Liverpool Free Public Library.
Liverpool, Lit. and Phil. Society.
Lloyds, The Committee of.
Local Taxation Committee.
London Hospital, The Secretary.
Longman and Co., Messrs., London.
Lovely, William, Esq., R.N., London.
Ludlow, N. M., Esq., London.

Mabson, R. R., Esq.
Machinery Market, Editor of.
Mackey, Rev. Donald J., Perth, N.B.
Maclure and Macdonald, Messrs., London.
Macmillan and Co., Messrs., London.
Madrid—
  Director-General of Beneficence and Health.
  Director-General of Public Works.
  Geographical Society of.
  Institute of Geography and Statistics.
Mallet, Sir Louis.
Man, E. Garnet, Esq., London.
Manchester—
  Literary and Philosophical Soc.
  Public Free Libraries.
  Statistical Society.
Massachusetts, Board of Health, Lunacy, and Charity.
  ,, Bureau of Statistics of Labor.
Mauritius, Colonial Secretary of.
  ,, Governor-General of.
  ,, Editor of Almanac and Colonial Register of.
Maier, Herrn Julius, Stuttgart.
Mayr, Dr. George, Munich.
Mechanical Engineers, Institution of
Medical Herald, Louisville, U.S.A.
Meitzer, August, Esq., Leipzig.
Mercator, Ernst, Esq., Frankfort.
Mouat, Dr. F. J., F.R.C.S.
Mulhall, M. G., Esq., London.

National Union of Elementary Teachers.
Nature, The Editor of, London.
Neison, F. G. P., Esq., London.
Newcastle-upon-Tyne, Public Libraries.
New York, Trustees of the Cooper Union.
Netherlands Consul at Liverpool.
  ,, Legation, London.
  ,, Minister of the Interior.
  ,, Statistical Society of.
Neumann-Spallart, Dr. Fr. Xav., Vienna.
Newcome, F. N., Esq.
Newmarch, Mrs. T., London.
New South Wales, Agent-General for
  ,, Registrar-General.
New York State Library.
New Zealand, Registrar-General.
Nimmo, Jos., Esq., jun., Washington.
Norway, Central Statistical Bureau.
Nowell, E. C., Esq., Tasmania.

Oesterreichisch-Ungarische Sparkassen-Zeitung, Vienna.
Ohio, Secretary of State.

Paris, Statistical Society of.
Parkes Museum of Hygiene.
Peek, Sir Henry, M.P., Wimbledon.
Petersen, Aleksis, Esq. Copenhagen.

During the Year 1881—*Continued.*

Pim, J. T., Esq., Monkstown.
Plowden, W. C., Esq., Calcutta.
Political Economy Club, London.
Poor, Henry V., Esq., New York.
Portugal, Consul-Genl. of, London.
Prague, Statistical Commission of.
Prinsep, C. C., Esq., London.
Prussia, Royal Statistical Bureau of.
Purdy, F., Esq., London.

Queensland, Registrar-General of.

Raikes, Captain G. A.
Ravenstein, E. G., Esq., London.
Redgrave, A., Esq., C.B.
Reeve, Dr. J. T. Madison, Wisconsin.
Reid, G. H., Esq., Sydney.
Reid, H. L., Esq.
Reinwald, C., Esq.
Review, The Editor of.
Rivista de Topografia, Agrimensura, The Editor of.
Révue Bibliographique Universelle, The Editor of, Paris.
Révue Geographique Internationale, The Editor of, Paris.
Rhode Island, Providence, City Registrar of.
Rivista Europea, The Editor of.
Robinson, Sir W. R., London.
Robÿns, Jules, Esq., Paris.
Rome, Giunta Centrale de Statistica.
Roth, H. L., Esq., Brisbane.
Roumania, Central Statistical Office.
Royal Agricultural Society.
,, Asiatic Society.
,, ,, ,, Bombay Branch.
,, ,, ,, North China ,,
,, Colonial Institute.
,, Geographical Society.
,, Institution.
,, Irish Academy.
,, Med. and Chirurgical Society.
,, Society.
,, United Service Institution.

Russell, Dr. J. B., Glasgow.
Russia, Imp. Geographical Society.

St. Bartholomew's Hospital, London.
St. Thomas's Hospital, London.
San Francisco, Library Association.
Sanitary Record, The Editor of.
Saxony, Royal Statistical Bureau of.
School Board for London.
Semenow, H. E., Mons. P. de.
Sensai, Nagayo, Esq., Tokio, Japan.
Seyd, E., Esq., London.
Seyd, R., Esq., London.
Shaw, Capt. E. M., C.B., London.
Siemens, C. William, Esq., D.C.L.
Slaughter, Mihill, Esq.
Smee, A. H., Esq., Wallington.
Smith, Dr. George, Edinburgh.
Smith, Colonel J. T., London.
Smithsonian Institution, U. S. A.
Snow, Dr. E. M., U.S.A.
Social Science Association.
Sonnenschein, W. Swan, Esq.
South Australia, Agent General for.
,, ,, Chief Secretary of.
South Australian Institute.
South Australian Royal Society.
Stanford, E., Esq., London.
Stark, W. E., Esq., London.
Statist, The Editor of.
Statistical and Social Inquiry Society of Ireland.
Sterne, Simon, Esq., London.
Stockholm, Statistik Tidskrift.
Stott, John, Esq., London.
Strangers' Friend Society.
Street Bros., Messrs., London.
Surveyors, The Institution of.
Sutton, E., Esq , London.
Sweden, Central Statistical Bureau.
Sweet, E. F., Esq.
Switzerland, Statistical Bureau.

Tait, P. M., Esq., London.
Tasmania, The Government Statist.

During the Year 1881—*Continued.*

Tasmania, The Registrar-General of.
,, Royal Society of.
Tayler, Mrs. N.
Textile Manufacturer, Editor of.
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